Shooters Island, Ships Graveyard
Newark Bay
Staten Island
Richmond County
New York

HAER No. NY-162

HAER
NY,
43 - SHOOT,
1 -

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWING

Historic American Engineering Record
Mid-Atlantic Region
National Park Service
Department of the Interior
Philadelphia, Pennsylvania 19106

HISTORIC AMERICAN ENGINEERING RECORD

Shooters Island, Ships Graveyard

HAER No. NY-162

Location: Newark Bay, Staten Island, Richmond County, New York and Elizabeth-Bayonne, Hudson and Union Counties, New Jersey

UTM: 18.7100.4499300
Quad: Elizabeth, New Jersey-New York

Present Owner: Ownership of the island is divided among the cities in which it lies. See maps in graphic section of data and measured drawing for boundaries.

Present Use: Ships graveyard

Significance: Shooters Island was one of five major ship graveyards in the Greater New York Harbor. From the mid-nineteenth century through 1922, the island was used for small scale industrial and shipbuilding operations. Abandoned vessels began to accumulate there by 1930. Most vessels there today are scows and barges, present in large numbers since the 1950s. Shooters Island has become increasingly significant to maritime history and technology, as other collections of vessels have disappeared. Two of the five ship graveyards in the harbor have been destroyed in the past few years, and another one has been partly destroyed.

Among the derelict hulks at Shooters Island, four are of particular interest. Vessel Number 37 (a covered barge probably built in 1923) is typical of the once-numerous covered barges with accommodations for a crew or family (see HAER No. NY-162-A). Vessel Number 53 (the MINERVA, ex JANE MOSELEY, a sidewheel passenger excursion ship with a walking beam steam engine, launched in 1873) is important as the earliest example of a walking beam engine vessel still existing (see HAER No. NY-162-B). Vessel Number 54 (a wooden-hulled, steam-powered package freighter, probably built in the 1890s) may be the last package freighter hull still existing (see HAER No. NY-162-C). Vessel Number 84 (a possible New York Harbor sailing lighter of the nineteenth century type), although fragmentary, represents what little is known of a once common and important small harbor vessel with ancestry that reaches back to the seventeenth century (see HAER No. NY-162-D).

Project Information: Mitigative documentation of Shooters Island was undertaken in compliance with a Memorandum of Agreement among the Advisory Council on Historic Preservation, the New Jersey State Historic Preservation Office, the New York State Preservation Office, and the New York District Corps of Engineers in accordance with Section 106 of the National Historic Preservation Act of 1966. Documentation was prepared by Historic Sites Research, Princeton, New Jersey, in the winter of 1984-85. The project was conducted by Dr. Susan Kardas and Dr. Edward McM. Larrabee, archaeologists and supervisors, with architectural technicians Robert Nash and Leslie Duffy Nash. Consultants included Norman Brouwer of the South Street Seaport Museum.

Edited, Retyped and Transmitted by: Jean P. Yearby, HAER, 1987

I. INTRODUCTION

Shooters Island, an area of roughly 30 acres, lies about 1,000 feet north of the northern Staten Island shoreline. It is situated where three major bodies of water in Greater New York Harbor come together. The Arthur Kill, separating Staten Island from New Jersey, is to the west and southwest; Newark Bay is to the north; and the Kill van Kull, which separates Staten Island (the Borough of Richmond in New York City) from Bayonne in Hudson County, New Jersey, is to the east. An interstate boundary runs east-west across Shooters Island, with slightly less than half its mass north of the line in New Jersey, and slightly more than half south of the line in New York State. The general location within the Greater New York Harbor and specific location are shown in Figures 1, 2, and 3.

This island was used for some shipbuilding from about the mid-19th century on, and for oil refining and storage after the Civil War, but its major use came early in the 20th century. From 1901 to 1904, it housed the well-known yacht-building firm of Townsend and Downey, and from 1917 to 1921, it was the site of the Standard Shipbuilding Corporation. There has been no commercial or industrial use since then, and the island has been essentially abandoned since 1921.

After activity ceased, various vessels were either left at their moorings (after 1930 in the boat basin east of the island), intentionally gathered there and abandoned as a group (after about 1950 on the shoals west of the island), or, in a few cases, dumped here individually or drifted onto the shore (on the west and, after about 1960, north of the island). At present, there are nearly 180 derelict wooden hulks in the three areas described around the periphery of Shooters Island. The great majority (76%) of these are scows and barges, and 11% more are various floats, pontoons, bridges, and other harbor utility vessel and objects. There are also the remains of about nine tugs, and of seven other individual vessels. This last category includes a side-wheel steamer, a steam "package freighter," a four masted schooner, a small ferry, a possible small light ship, a World War II landing craft, and the bottom of a hull which maybe one of two surviving pieces of a 19th century New York Harbor sailing lighter.

Figures 4 and 5 show the subdivisions under which the ship graveyard have been studied, the distribution of derelict vessels, and the locations of the four which were recorded.

Many of these wooden hulks are badly deteriorated after decades of rotting in these shallow waters, subject to tide, weather, salvage stripping of most iron work, and occasional fires. However, enough material remains of some of these wooden hulls so that historically and technologically valuable information can be gained by examining, studying, and recording them. This study, based on previous studies and current fieldwork presents a brief history of the use and

growth of Shooters Island, of the development of the ship graveyards there, and a summary description and analysis of the contents of this graveyard at present. This is placed in the context of shipping in Greater New York Harbor, which has had a dominant position in United States and world commerce for more than a century.

Finally, this report presents a Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) level recordation, by measured drawings and photographs, of four selected vessel remains, along with historical discussion of those specific vessels or types (see HAER No. NY-162-A; HAER No. NY-162-B; HAER No. NY-162-C, and HAER No. NY-162-D), all in Survey Area II.

II DESCRIPTION OF THE RESOURCE

A. Shooters Island

1. Geology and Prehistory

The underlying geological formations for the area of northern Staten Island are sandstones, mudstones, argillites and shales of the Late Triassic Newark Group. The spin of Bayonne, nearby, and of Hudson County, New Jersey, north of that, is the BERGEN ridge, which is formed on the intrusive Palisade Sill of diabasic basalts which cross-cut the sedimentary formations (Van Houten 1969, Wolfe 1977). A late nineteenth century geological report indicates that the "shales and sandstones....appear on Shooters Island and on the adjacent shore" (Bayles 1887: 11-12). Shortly after that description was published, the process of raising and expanding the surface of Shooters Island obscured the original island. There is now a minimum of six feet of land fill covering the original island, so that its geological nature can not easily be determined.

A reconstruction has been made of the topography during the past several thousand years, as the ocean rose from its late Pleistocene low to near the present sea level. This indicates that during Late Archaic and Early Woodland Archaeological stages, about 3,000 years ago, Shooters Island was a knoll projecting above the valley of the Passaic-Hackensack River at a sharp bend, and was probably a desirable habitation site (Kardas & Larrabee 1976: 18-19). Because of the thick covering of landfill, it is not known if evidence of prehistoric occupation is preserved on the original Shooters Island. However, there were at least six major prehistoric sites on neighboring Staten Island, and several on nearby parts of Bayonne. So, it is likely that there was extensive aboriginal use of Shooters Island (Skinner 1909: 5-9; Skinner & Schrabisch 1913: 42; Smith 1950; Anderson 1964, 1967, 1970; Ritchie 1969; Jacobson n.d., Kardas & Larrabee 1975; Rockman & Rothschild 1979: 5-8).

2. Historic Development

The early history of Shooters Island is only vaguely known. It is shown on some seventeenth century maps, such as the Manatus Map drawn in 1639 and known from a circa 1670 copy (Figure 6), a mid-seventeenth century map by Pieter Goos, and the 1660-1670 Robert Ryder map, which refers to Shooters Island by name (Kouwenhoven 1953; Leng and Davis 1930: 120). Variants of the name are Schutter's, Shuter's, Suter's and Shuttor's Island (Davis 1896). It reportedly arose because the early Dutch settlers shot wild geese there (Leng and Davis 1930: 120). In 1680, it was granted to a James Graham, who came to New York from Scotland after the British capture of New Amsterdam. A Staten Island resident named John Mersereau made Shooters Island a drop point for delivering intelligence on British movements for George Washington during the American Revolution (Smith 1970: 73-74). The island is shown schematically, labelled "Shuters Id.," on a 1780 map showing military action near the Elizabeth River (Figure 7).

Documented history of Shooters Island extends from the mid-nineteenth century to the present. The first recorded owner during this period is David Decker, whose house is shown on the 1853 Butler map and the 1859 Walling map. An advertisement for sale during this time described the property as containing "between 10 and 11 acres of land, and six acres are above common water. The improvements are a dry dock, accommodation dock, a two story brick house, and a joiner's shop" (Anonymous 1863). Another description said that Shooters Island had "some buildings on it, beside accommodations for constructing vessels of considerable size" (Anonymous 1864). The appearance at this time can be seen in an 1855-56 chart of Newark Bay (Figure 8).

The island was sold during the 1860s and became the location of the Shooters Island Petroleum Refining and Storage Company. Their plant was described as including the following structures: "refinery building 56 feet long by 36 feet wide; storage 33 feet wide by 100 feet in length; cooper and barrel house 80 feet long by 33 feet wide; the engine rooms, still and condensing rooms cover a space of 42 feet by 96 feet.../and the company/ also built a fine dock for their use" (Anonymous 1865: 2-3). Woodruff and Houston of New York City purchased the Shooters Island Company in 1867 (Anonymous 1867: 2). The island and some of the buildings during this period are shown on the U. S. Coast and Geodetic Survey Chart of 1886 (Figure 9), Vermeule and Bien's map of 1890, a 1901 map of New York City, and Hyde's map of 1906.

It is not known how long the refinery and petroleum facilities were active. Throughout this time, the island was apparently still in use as a shipyard. This is confirmed from the 1860s, when Decker was

advertising the property. As mentioned above, he described the improvements as including a dry dock, an accommodation, and a joiner's shop (Anonymous 1863). Later, it was said that there were "accommodations for constituting vessels of considerable size. A number of our Staten Island ship carpenters graduated at that place and have given it a good name" (Anonymous 1864).

The most active period for Shooters Island came with the turn of the century, when the famous firm of Townsend and Downey opened a shipyard on the island, either in 1898 or 1900 (Leonard 1920: 250; Anonymous 1902 a). They built successful yachts for racing and cruising, the best known of which was the three-masted schooner yacht ATLANTIC, which in 1905 set a record for transatlantic crossing under sail that was not beaten until the 1980s (Rath 1969). The most famous event to occur on Shooters Island was during the Townsend and Downey era. In 1902, the yacht METEOR, built by Kaiser Wilhelm II, was launched there and christened by Alice Roosevelt, in the presence of her father, President Theodore Roosevelt, his wife, the Kaiser's brother Crown Prince Henry, and numerous other dignitaries (Anonymous 1902 b).

At that time, it was reported that Townsend and Downey's facilities on the island were being enlarged into "monster shipyards" and that the property was to be increased by purchasing land and filling the area around the wharf (Anonymous 1902 a). This implies that Townsend and Downey did not at first own the entire island. It is not known if this planned enlargement of the island did occur in 1902, but quite possibly it did not, because the small output of the Townsend and Downey yards (two launchings in 1901, three in 1902, one in 1903, and two Coastal Petroleum barges in 1904) ceased with the launching of their eighth vessel in 1904 (U. S. Department of Commerce 1936).

There are two detailed maps showing Shooters Island during this time. The 1907 Robinson and Pidgeon map shows the location and function of many of the features at the shipyard, and the 1910 Topographical Survey of the Borough of Richmond describes construction material of the buildings (Figure 10).

Use of the island from about 1906 to 1917 is not known. With the entry of the United States into World War 1 came the second major period of activity on Shooters Island. From 1917 until 1921, according to one source, this was the site of the Standard Shipbuilding Company, which launched about 29 steel cargo ships during that period (Lloyd's 1924). A more official listing shows that they launched one ship in 1917, nine in 1918, six in 1920, and one in 1921, after which their output ceased. Of this total of 26 vessels, 23 were cargo ships of 4400 to 5100 gross tonnage, and probably were standardized U. S. Shipping Board Cargo Vessels. The last two vessels built in 1920 were much smaller (1400

gross tonnage), and the single vessel built in 1921 was the New York City fire boat JOHN PURROY MITCHEL, of only 334 gross tonnage (U. S. Department of Commerce 1936). This was the last ship built on Shooters Island. There are two very detailed maps showing the use of the island during this period. The 1917 Sanborn Insurance Map shows buildings, materials, structural features and activity areas. Much of this information is repeated on the 1928 Sanborn Map (Figure 11).

3. Growth of Shooters Island

The process of increasing the size of Shooters Island by adding fill to its surface and periphery began in the middle of the 19th century and continued until the island was abandoned after 1921. Shooters Island was described in the 1860s as consisting of 10 to 11 acres of land, six of which were above high water (Anonymous 1863). More recently, estimates of the area of the island have ranged between 35 acres (Anonymous 1932), 51 acres (Pfeiffer 1978) and 90 acres (Corps of Engineers 1979: 1). Scaling from project aerial photographs of the existing eroding land mass indicates about 1,200,000 square feet or approximately 28 acres.

Examination of the shape and size of the island through its history can be made using historic maps and charts. Butler's map of 1853 and Walling's map of 1859 show the island when it was occupied by David Decker. Then, the natural shoreline of the island seemed to be unchanged, and the island had an irregular ovate shape. An 1855 harbor bathymetry survey shows a pier on the south side, project toward Staten Island (Figure 8). This situation persisted into the 1870s. A map of 1878 shows this southward extending pier and suggests minor shoreline change west of that. Slightly later in the nineteenth century, during the time when the island was used for a petroleum refinery and storage, substantial changes were made. The U. S. Coast and Geodetic Survey Map of 1886 shows that the west edge of the island had been established along its present straight line, but there was at least one indentation, and filling was not complete (Figure 9). The southwest and south lines were also established, as at present, by seawalls, and the east shore was about where the inner part of the boat basin is today. New Jersey maps of 1887 and the Vermeule and Bien map of 1890 show that the southern and western peripheries of the island had been filled to complete the straight lines, and the inner part of the later south pier had been constructed, projecting eastward and forming part of the enclosure which became the fitting-out or boat basin. The pier which had extended south from the island since the 1855 map was now gone.

The 1890 map also indicates the pier line around the island, which later became the perimeter for fill added to the north and east of

the island. First, this pier and bulkhead line was expanded in 1902 and fill was added to the island by Townsend and Downey (1907 map; Borough of Richmond Topographical Survey of 1910; Anonymous 1902, see Figure 10). With the early 20th century expansion, the east side of Shooters Island was now complete, as the south, southwest, and west sides had been by the latter 1880s, but the north and northeast sides was still confined below the interstate boundary, short of its present location. Later, in 1916, the pier and bulkhead lines were extended across the New Jersey boundary, as indicated on the Sanborn Map of 1928, and extensive fill was added to the north end of the island (see Figure 11).

A 1921 Federal survey of the New York and New Jersey border, which assumed 35 acres for the island, allotted 14-1/2 acres to Bayonne, 3/4 of an acre to Elizabeth, for a total of 15-1/4 acres north of the boundary in New Jersey, and the remaining 20 acres to New York (Anonymous 1932: 1). Examination of the preceding sequence show that most of the filled area of Shooters Island lies to the north and east of the original island, with the southern and western shorelines extended only slightly. The limited amount of fill used to square out the south and west sides is about one century old, while the extensive fill to the north and east dates from the first and second decades of the twentieth century.

Borings made for the Corps of Engineers show that land fill extends to depths of 11 to 13 feet in the northern portion and on the peripheries of the island, but extends to a depth of only 6 to 8 feet in the center of the original island area (Corps of Engineers 1979, Appendix C). The boring logs indicate that the island has had a complex history of fill and deposition, and that the original island might be buried and relatively undisturbed under this fill. Manual archaeological test pits dug in 1978 failed to penetrate below the land fill (Rockman and Rothschild 1979: 16-19).

4. Channel Dredging

The first channel dredging recorded in the vicinity of Shooters Island resulted from an appropriation of $2,000 voted by Congress on August 30, 1852, for a survey of Newark Bay and $10,000 for "improvements" (Chief of Engineers 1926: 265). A chart of soundings resulting from this work was produced by Lt. R. Wainwright in 1855-56. Subsequent work was authorized in Newark Bay in 1926, 1929, 1938 and 1954. Analysis of data presented in the Annual Reports of the Chief of Engineers, U. S. Army, suggests that no substantial dredging occurred in New Bay proper prior to 1926 (Kardas & Larrabee 1976: 33-35).

Aerial photographs, available in the Riparian Section, New Jersey Department of Environmental Protection, show that the dike north of Shooters Island existed and was aligned as it is now in 1930 and 1940, which means the channel "North of Shooters Island" must have already existed. A dredging permit granted in 1920 to the "Standard Shipbuilding Corp., Shooters Island," allowed for dredging to depths of from 12 feet to 22 feet at mean low water in the basin east of Shooters Island.

In Staten Island Sound (now generally referred to as The Arthur Kill) work was first authorized in 1874, and again in 1875, 1880, 1888, 1889, 1890, 1896, 1902, 1912, and 1913. The initiation of this work coincided with such developments as the creation of the Singer Industrial complex in 1873. By the mid-twentieth century, these authorizations had created a channel described as "passing north of Shooters Island and protected by a Dike on its northern side," and a secondary channel which passed south of Shooters Island (Chief of Engineers 1963: 184-185). This was redredged in 1963 and following years, and the dike was to undergo "construction," although it must have existed since at least 1930. The same channel and dike authorizations were made in 1973 (Chief of Engineers 1973: 2-13 and 14, Item 17). The repeated dredging of these established shipping channels has prevented the accumulation of derelict hulks within channel areas. The ship graveyards are confined between the two channels which run on the north and south sides of Shooters Island.

B. The Ship Graveyards

1. Development of the Ship Graveyards at Shooters Island

The sequence of development presented here is a compilation of previous reports, particularly the two detailed Surveys of Vessels by Brouwer (1981, 1983), but also includes material from surveys of adjacent channels and reaches (Kardas & Larrabee 1976, 1980). The island has not been used commercially since about 1921, when the Standard Shipbuilding Corporation Yards were closed. It was not reopened during the period of intense activity in Greater New York Harbor preceding and during World War II. There has been some informal use, as indicated by census reports that there were five residents in 1940 and two in 1950 (Anonymous 1958).

After the abandonment of the shipyards, the areas east, and later west, of the island have become places where abandoned vessels accumulated. This process may have begun with vessels stored there in the 1920s. An aerial photograph dated 1930 in the collection of the Staten Island Historical Society shows one abandoned hull, probably formerly a tug, in the center of the shoal area west of the island.

No sign of this vessel was found during the survey of Area I for hulks (Brouwer 1981: 2). The 1930 photograph shows the shipyard shut down, and the former fitting-out basin (hereafter referred to as the boat basin) on the east side of the island filled with deck scows, with masts and derricks moored in neat rows. It is possible that some of these vessels were later abandoned on the west side of the island but, if so, it was after intervening removal from the island.

In this 1930 photograph, the MINERVA (ex JANE MOSELEY, clearly identified by her side-wheel housings) can be seen moored next to two other vessels which are moored alongside the south pier of the boat basin. One long ship (about 300 feet) is moored at the outer end of that pier, and a cargo ship is moored alongside the north pier. The only other vessels visible at Shooters Island in 1930 are the 22 deck scows with cranes, four covered barges, and six hopper barges moored in or adjacent to the boat basin, and a small ferry boat in the ferry slip.

A photograph was taken around 1936 from the south pier at the boat basin, looking back toward the island and showing the MINERVA (Vessel 53 in the inventory, Brouwer 1983) aground and deteriorating next to the pier (see HAER Photograph No. NY-162-B-6, courtesy of The Mariners Museum). The bow of Vessel 54 is visible to the right, and beyond that is what appears to be the smokestack of a tugboat. Thus, the accumulation now present on the east side of the island had begun to take shape during this decade. The position of some of these ships had shifted from the 1930 photograph. The "package freighter," Vessel 54 (a type designed for short coastal routes or sheltered waters such as Chesapeake Bay and Long Island Sound) which was permanently aground north of the MINERVA around 1936, may have been the vessel south of the MINERVA in 1930, between her and the south pier.

The next documentation of the process of abandonment is an oblique aerial photograph taken about 1940 (see HAER Photograph No. NY-162-3, original from The Staten Island Advance). The MINERVA (Vessel 53) and the package freight (Vessel 54) are in the same relative positions as in the 1936 picture, both clearly aground and partly sunk. Deterioration of wood is advanced (see HAER Photograph No. NY-162-4, an enlargement of part of HAER Photograph No. NY-162-B-3). Three barges are visible, one a deck scow (next to the MINERVA) and the other two were formerly covered barges which have lost their superstructure, except for the distinctive "T-braces" which once supported the roof. Otherwise, the main boat basin was empty in 1940. Some of the early 20th century shipyard buildings were still standing when this picture was taken. The fact that this oblique view represents the situation as of 1940 is confirmed by a high vertical aerial photograph dated "4-28-40" (Survey of New Jersey, Exposure 23-08). Details are imprecise, so the picture was not reproduced, but

it is possible to see that the vessels in the boat basin are those shown in HAER Photographs No. NY-162-3 and NY-162-4, in the same positions. Significantly, no derelict hulks are shown in the shoals west of the island.

There are undated aerial photographs on file at the South Street Seaport Museum which must have been taken during the mid-1960s, because the towers and cables of the Verrazano Narrows can be seen. These show many vessels in the shoals area west of the island, including some which can be recognized as now present. They also show salvage work in progress, which included stacking large quantities of timber along the west shore of the island and on many of the barges. Photographs in the same collection, dated October 1969, show that the salvage work and lumber stacking had ceased, and most, but not all, of the bulks were in their present locations (see HAER Photograph No. NY-162-5).

From this we conclude that there were no ship graveyards as such at Shooters Island until after 1930 on the east side and probably after 1950, on the west side. Some of the vessels which had been moored in the boat basin on the east side of the island before 1930 were abandoned there, and allowed to sink and decay in essentially the positions where they had been moored. This includes the MINERVA (Vessel 53), the package freighter (Vessel 54), and several barges. The four-masted schooner BESSIE M. DUSTIN (Vessel 59, now completely sunk alongside the marine railway on the north side of the boat basin) was not present in 1940. However, as late as 1940 no derelict vessel were present west of the island, except for the isolated tug hull seen in the 1930 photograph.

Sometime between 1940 and the 1960s, there was accumulation of hulks on the shoals west of the island, probably in progress by the time the U.S.G.S. Quadrangle Map was issued in 1955. From the mid-1960s to the present, this graveyard has consisted of essentially the same vessels, which are mostly barges of various kinds. Salvage and lumber piling operations occurred in the 1960s, a few additional hulks have appeared, and some of those present have been removed, apparently by natural causes, but the basic constituents have remained the same for the last two or three decades.

During the 1940s and 1950s, a few barges were added to the hulks at the boat basin east of the island, and the BESSIE M. DUSTIN (Vessel 59) was brought in from Port Johnston in Bayonne, where her registry had been abandoned in 1936. She was visited and photographed at Shooters Island in the early 1950s (Brouwer 1983: 5). However, the collection of hulks on the east side of the island was apparently not affected by the ship graveyards that developed west of the island.

In effect, Shooters Island is the site of two independently developed graveyards. The site east of the island became a final resting place for hulks which had been out-of-service ships moored alongside piers and eventually abandoned at their moorings. The process happened gradually and was not planned. Most of the hulks now present were ships of types other than "harbor utility vessels" (barges, etc.), most were present by 1930, and they were already sunk and decaying by the mid-1930s. The graveyard west of the island consists of many more hulks, with harbor utility vessels predominating. None of them were present before 1940, and most were present by the 1960s. These barges, scows, tugs, dry-dock sections, etc., were deliberately pushed together and abandoned there, in a conscious process of creating a harbor dump. They represent a more consistent type of vessel, apparently gathered in one operation over a relatively few years. It is suggested that this probably coincided with the retirement of the once-extensive fleets of railroad tugs and barges, which occurred in the 1960s and the early 1970s (Kardas & Larrabee 1983: 37).

2. Description of the Ship Graveyards at Shooters Island in the 1980s

A vessel-by-vessel inventory was made by Brouwer in the early 1980s (1981, 1983). It is possible that some of the hulks may have been moved by tide and current between the time of the two studies. This effect was noted in comparing aerial photographs taken a few years apart in the 1970s (Kardas and Larrabee 1980: 47, 71, 72, 79). However, it is not believed that this could affect more than a few of the scow or barge positions, and it has not altered the identification of any of the significant vessels.

The first half of this inventory dealt with the northern half of a large concentration of abandoned vessels on the west side of the island, lying north of the interstate boundary, in Elizabeth, New Jersey (Area I). The second part dealt with the southern portion of that concentration of wrecks, as well as groups of abandoned vessels on the east and north sides of the island (Area II). The two parts of the survey involved 81 and 97 hulks respectively, for a total of 178 visible wrecks in the Shooters Island graveyards.

As in other New York Harbor graveyards of abandoned vessels, there are almost exclusively wooden hulls, as iron or steel hulls could be profitably broken up for scrap metal. Once the vessels were abandoned, any protective paintwork quickly lost its effectiveness. In many cases, the paint had disappeared completely. By the time of the surveys, the unmaintained decks had become too weak to support a person between the beams. Where the decks have been partially burned, even the beams were often too weak to support any weight.

Some of the scows in Area I do not appear to have had any deckhouses for crew or watchmen. In other cases, the deckhouses have been removed or burned away. The wrecks in Area I were assigned numbers 1 through 81. Of these, there were only eight largely intact deckhouses on scows, and only one intact deckhouse on a covered barge. The loss of paint on these wrecks has made identification very difficult. Only two deck scows, No. 18, the JACOB A. DECKER (built in 1930 in Newburgh, New York) and No. 27, the KEATING (built in 1912 in Port Richmond, New York) could be positively identified by painted names. Others, such as No. 13 and No. 23, still had legible markings, but these did not appear on the Department of Commerce lists of U. S. merchant vessels. Covered barge No. 32 had a readable official number 163133 cut into a major beam by which it was identified through records in the National Archives in Washington, D. C. as the HOFFMANS, built in Brooklyn in 1907 and operated by the New York Central Railroad. Most of the other vessels should still have similar incised numbers, but the difficulty and hazards involved in trying to locate them are not justified by the vessels' limited historic importance.

The second part of the Shooters Island survey involved vessels more varied in type than those described in the first part. The number sequence was repeated, running from 1 through 97. These include: a sailing lighter (Vessel 84), a four-masted schooner (Vessel 59), a sidewheel (Vessel 53), a Package Freighter (Vessel 54) and four tugs (Vessels 18, 30, 34, and 48). For more detailed comments on Vessel 53, see HAER No. NY-162-B, on Vessel 54, see HAER No. NY-162-C, and on Vessel 84, see HAER No. NY-162-D. Also surveyed were two floating drydocks, three covered barges, several fairly intact deck scows, and a large number of badly deteriorated hulls of what were apparently scows and barges.

A complete breakdown of vessels by types appears in Figure 12, arranged by the two surveys of the ship graveyards (adapted from Brouwer 1981: 2-4, 1983: 1-2). In this chart, the vessels are listed by the two survey areas, because this is how numbers were assigned to them for purposes of inventory and identification. In Figure 13, they are then listed in three areas of accumulation, which represent less arbitrary divisions. The accumulation of 147 hulks in the shoals west of the island includes all items in Survey Area I and most of those listed in Area II. The remainder of Area II is divided into 11 vessels which have accumulated where the former shipbuilding slipways extended to the northeast on the north side of the island, and 20 vessels which are lying in or adjacent to the former fitting-out basin (or boat basin) on the east side of the island.

There are significant differences between the characteristics of the three collections or groupings of hulks, which reflect the different

histories of each area. As described previously under the history of the island and development of the separate ship graveyards, the process started in the late 1920s or early 1930s in the boat basin, where several out-of-service ships were moored by piers. Some of these were allowed to sink at their moorings and, by 1940, the Boat Basin Graveyard was well-developed, with a few additions as late as the early 1950s. The relatively few vessels there tend to be varied and include some ocean-going or coastal cargo ships. The graveyard on the shoals west of Shooters Island was created by intentional dumping of many abandoned vessels, overwhelmingly scows or barges. None were there as late as 1940, and probably none as late as 1950. Some were present by the mid-1950s, and by the mid-1960s this large collection was in existence. The last graveyard consists of the very few vessels scattered north of the island. It probably includes some late abandonment of individual vessels, and some cases of drifting hulks that went aground in the shallows or stub pilings of the former slipways.

Comparison of the graphic representation of these three areas, and of the combined groups, shows these different characteristics. For the entire island, the graph in Figure 14 shows the majority of vessels on the left side of the graph (vessels a to j) with a marked peak at columns i and j. These are generic barges, with the largest number at i being deck scows and the next highest number at j being undifferentiated barge or scow remains. A moderate large number of vessels are in the center to center right side (columns k to u). Here are miscellaneous harbor utility vessels and objects, including tugs. Finally, there are seven columns (v to bb) on one vessel each, representing the unique ships at Shooters Island.

The graph in Figure 15 for the 147 hulks in the shoals west of the island is very similar, which is to be expected, since this graveyard contains 83% of all hulks present. However, it is almost lacking in the unique vessels. The graph in Figure 16 for the old slipway area north of the island shows only 11 vessels (6% of the total), but the two clusters of vessel types are in the same places as for the shoals west of the island, showing that the collection, although small, is of the same nature.

Looking at the graph in Figure 17 for the boat basin east of the island, a marked difference is apparent. The 20 hulks here constitute only 11% of the total, but include five of the seven unique vessels. There are a few barges, but the overall pattern with its wide variation is quite unlike the uniform collection west of the island.

Another way of expressing the difference is to examine major categories of vessels or vessel types (see Figures 12 and 13). Overall, there were 28 hulks which could be classified as types of barges (16% of the

total), 64 hulks which were deck scows (36% of the total) and 43 which were too deteriorated or obscured to differentiate (24% of the total). Thus, there were 135 scows or barges making 76% of all hulks. Of this total, only 11% (6% of all vessels and 8% of all scows and barges) were east of the island, and only 4 (about 2% of all vessels, and 3% of scows and barges) were north of the island. West of the island were 120 scows and barges (67% of the grand total and 89% of all scow-hulled vessels). This major category is very largely concentrated west of the island.

At the other end of the spectrum, there are seven unique or unusual vessels, making only 4% the total. Of these, five (about 3% of the total, but over 70% of all unique vessels) were in the former boat basin east of the island. One more (Vessel 72 in Area II, an unknown steam or motor vessel, possibly a small lighter or a former lightship) is aground to the north of the island, and the remaining different vessel, a small World War II landing craft (Vessel 75 in Area I) is capsized ashore on the beach along the west sea wall of Shooters Island.

An interesting observation concerns tugs, which were the work horse and motive power of the extensive New York fleet. At Shooters Island, nine hulks were identified as tugs, which is 5% of all vessels. The ratio of 9 tugs to 135 scows or barges is exactly 1 to 15. If the 19 other harbor utility vessels or objects which would have been pushed or towed is added, and the 8 unidentified vessels or wreckages (on the assumption that this was probably from scows, barges, or utility vessels), the ratio is 9 tugs to 162 vessels or objects, or exactly 1 to 18. Two-thirds of the tug remains are west of the island, with the scows and barges they once moved.

IV. DISCUSSION OF SPECIFIC VESSELS AND VESSEL TYPES RECORDED

1. New York Harbor and Hudson River Covered Barges

Most of the barges used to transport goods on the Hudson River or between points within New York Harbor fall into three types. "Hold barges" have large hatches taking up most of the main deck and carry their cargo stowed below, inside the hull. The hatches are provided with covers if a perishable cargo, such as bulk grain, is being carried. Hold barges are sometimes called "box barges," and those carrying coal were also called "coal boxes." "Deck scows" had no hatches, and stowed all their cargo on the main deck. If the cargo required any protection from the weather, it was covered with canvas tarps. Among the more common deck scow cargoes were stacked building stone, brick or ingots of various metals. "Covered barges" also stowed all cargo on the main deck, but were also provided with a large

permanent deckhouse to shelter that cargo from the elements. All three types of barges were called "lighter barges," or simply "lighters," though this last term also referred to several types of self-propelled craft.

Some of the earliest covered barges were used to transport passengers rather than cargo. From the 1820s into the 1850s, a number of "safety barges" were built for the Hudson River. They looked much like steamboats, but had no propelling machinery. Towed by steamboats or by towboats, they provided transportation for people concerned about the danger of boiler explosions on steam-propelled craft. Similar barges were used later in the century to handle excursions in New York Harbor, because of their low cost. Others were employed as "immigrant barges," used to move arriving passengers from liners to Castle Garden and later from Ellis Island, and from there to rail terminals in New Jersey. An offshoot of this was the "floating hospital," operated by a charitable organization to provide poor families with excursions, medical checkups and treatment. The program is still in existence, now operating a fully-fireproof, steel barge out of the west side pier during the summer months.

The opening of the Erie Canal in the 1820s created the need for large scale towage on the Hudson. Canal boats were moved from the upper river to and from the Port of New York in large rafts of 30 or more moored together. The primary towboat was usually one of the big sidewheelers, often a former passenger boat with accommodations removed, on a towline well out in front. It would be assisted by one or more propeller tugs, helping steer the tow around bends, adding power where the current was strong, and attaching and detaching canal boats or barges from the tow along the route. Towns along the river that did not have adequate steamer service, or wished to reduce costs, had barges built to transport locally produced goods to the city. These "hay and produce barges" closely resembled passenger barges, having one or two decks sheltered by a roof, but usually open at the sides. If further protection from the weather was needed, canvas tarps could be rolled down and secured around the sides. Similar one-, two-, and three-deck barges were used to transport livestock. Within New York Harbor, livestock barges, as well as a number of converted ferries and steamers, moved cattle from stockyards in Jersey City to slaughter houses on Manhattan's west side. All types of livestock, including horses, were transported to the piers of oceangoing steamers for export to Europe.

The earliest fully enclosed covered barges were simply craft of the types described above, with their sides completely walled in with wooden planking. Their hulls still conformed to the steamboat shape, with a pointed bow and a round counter stern. The deckhouses filled

most of the area, only squared off well forward, and usually following the curve of the counter aft. Their hulls were light enough in construction to still need a system of hog chains, supported on several masts, to provide longitudinal strength. The final generation of wooden covered barge, of which Vessel 37 is an example, was developed in the late 1800s and went into general use in the early years of this century. It was to provide the model for later steel covered barges. The last wooden examples were built in the 1950s. The last steel covered barges were used by McAllister Brothers to transport coffee from Brooklyn to the Maxwell House plant in Hoboken. They were retired in 1983, when container transport of coffee was finally perfected.

Wooden barges and scows are no longer being built, and very few are still in use, having been almost universally replaced by steel hulls. No significant historic archive is known to contain plans or information on the construction of wooden barges. The hulls of these craft were very strongly built to withstand heavy cargoes and rough usage. Among the barges and scows surveyed in New York Harbor, a variety of structural systems have been observed, ranging from the traditional timber knees cut from trees to shape, to diagonal braces, both timber and steel rod. Barges may seem the most prosaic of watercraft, but their technology represents further resourcefulness in solving the problem of moving goods by water and skill in working with wood. It should not be allowed to disappear without leaving behind a record. Figures 18 and 19 illustrate the general configuration of these scow-hulled vessels, and Figure 20 gives the terminology in use in the 1920s, as well as showing the bracing system. No plans have been found for the specific barge which was recorded (Vessel 37).

In addition to providing information on construction methods, the barge wrecks can also tell us about two other areas, handling of cargo and crew living conditions. Prior to World War I, many barges and scows in New York Harbor were operated by families, often including several children. Port security restrictions in wartime, and greater concern over truancy and health problems of the children, led to a rapid decline from the war into the 1920s, after which most barges were only crewed by single men. Almost nothing has been done to document the earlier way of life, similar to, but perhaps less romantic than, family operation of canal boats. One contemporary illustrated report exists in the form of an article in the Monthly Labor Review for July 1918 titled "New York Harbor Employees" (Squires 1918). While living quarters were seldom as low in the hull, or as cramped, as those on canal boats, they were hardly spacious. As the above article reports:

> The combined living room and kitchen of a coal boat is about 12 feet square. The other room, about the same size, serves as a bedroom. A captain, his wife, and four children - a girl 3 years old and three boys 8, 9, and 10 years old - live on the boat. In order to accommodate the family at night a folding bed is set up in the kitchen. The boat and cabin are clean and well kept, but the crowding of six people into two small rooms is wholly undesirable.

In another example:

> The living room is about 10 by 12 feet; the bedroom and kitchen each about 6 by 6 feet. The bedroom has a bunk built into the side and a cot under the bunk. A folding bed is a pat of the furniture of the living room. A family of six live on the boat - the captain, his wife, one girl 17 years old, and three boys aged 6, 9, and 13 years. In addition to these six, an older son is sometimes at home.

Where deckhouses for living quarters survive on barges or scows in the Shooters Island graveyard, they fit these descriptions as well. In Survey Area II, Vessel 36, an open barge, had the most intact living quarters of any vessel surveyed in 1981-1982. The deckhouse was of the sunken type, with only the upper half rising above the main deck level. It had two rooms, which contained remains of most of their furnishings; in the larger room, sink, stove, counter, cabinets, closet, table and chair, and in the smaller room, a bed and closet. Unfortunately, this whole structure was on the verge of collapsing and was very hazardous to enter in 1982. By 1984, the structure had collapsed, so the features could not be recorded. The other surviving deckhouses in this group of vessels had few furnishings, aside from closets, but they offer information on construction, size, lighting, and ventilation.

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APPENDIX

Location of Sources of Data

Figure 5	U. S. Army Engineering District, New York, NY.
Figures 7, 8, 9	The Richard Halibarton Map Collection, Firestone Library, Princeton, New Jersey
Figure 10	Borough of Richmond Engineering Department, St. Georges, Staten Island, New York
Figure 11	U. S. Army Engineering District, New York, NY.
Figures 16, 23, 25	South Street Seaport Museum Library, New York, NY.
Figure 26	The Collection of Harry Jones, 100 Tyler Court, Waldorf, Maryland 20601
Figures 29 and 32	South Street Seaport Museum Library, New York, NY.
Historic data presented in Section IV. A.,	South Street Seaport Museum Library, New York, NY
Manuscript reports cited in bibliography	U. S. Army Engineering District, New York, NY.
Photographs 21 and 22	The Staten Island Advance, Staten Island, New York
Photographs 24 to 27	The Mariners Museum, Newport News, Virginia

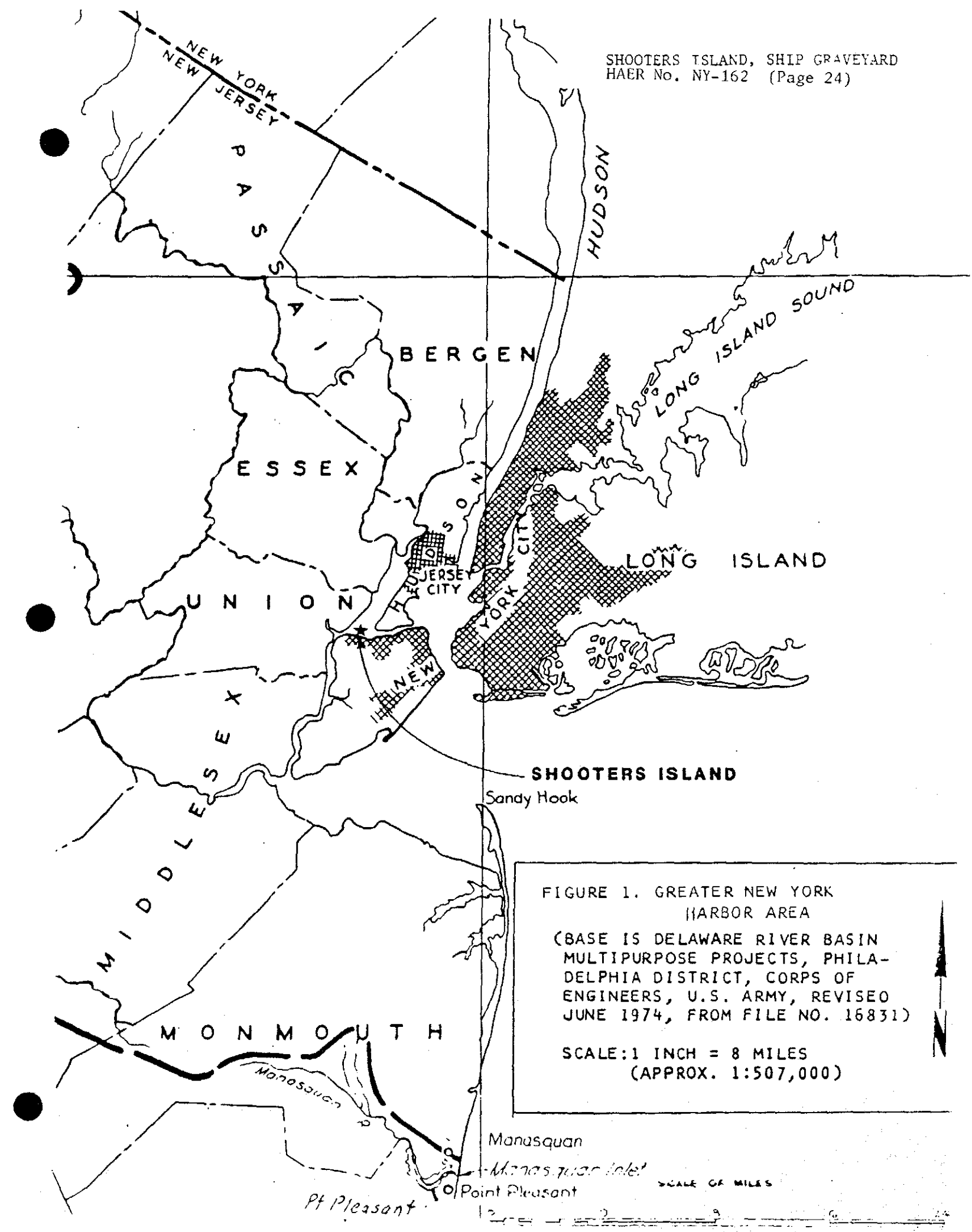


FIGURE 1. GREATER NEW YORK HARBOR AREA

(BASE IS DELAWARE RIVER BASIN MULTIPURPOSE PROJECTS, PHILADELPHIA DISTRICT, CORPS OF ENGINEERS, U.S. ARMY, REVISED JUNE 1974, FROM FILE NO. 16831)

SCALE: 1 INCH = 8 MILES
(APPROX. 1:507,000)

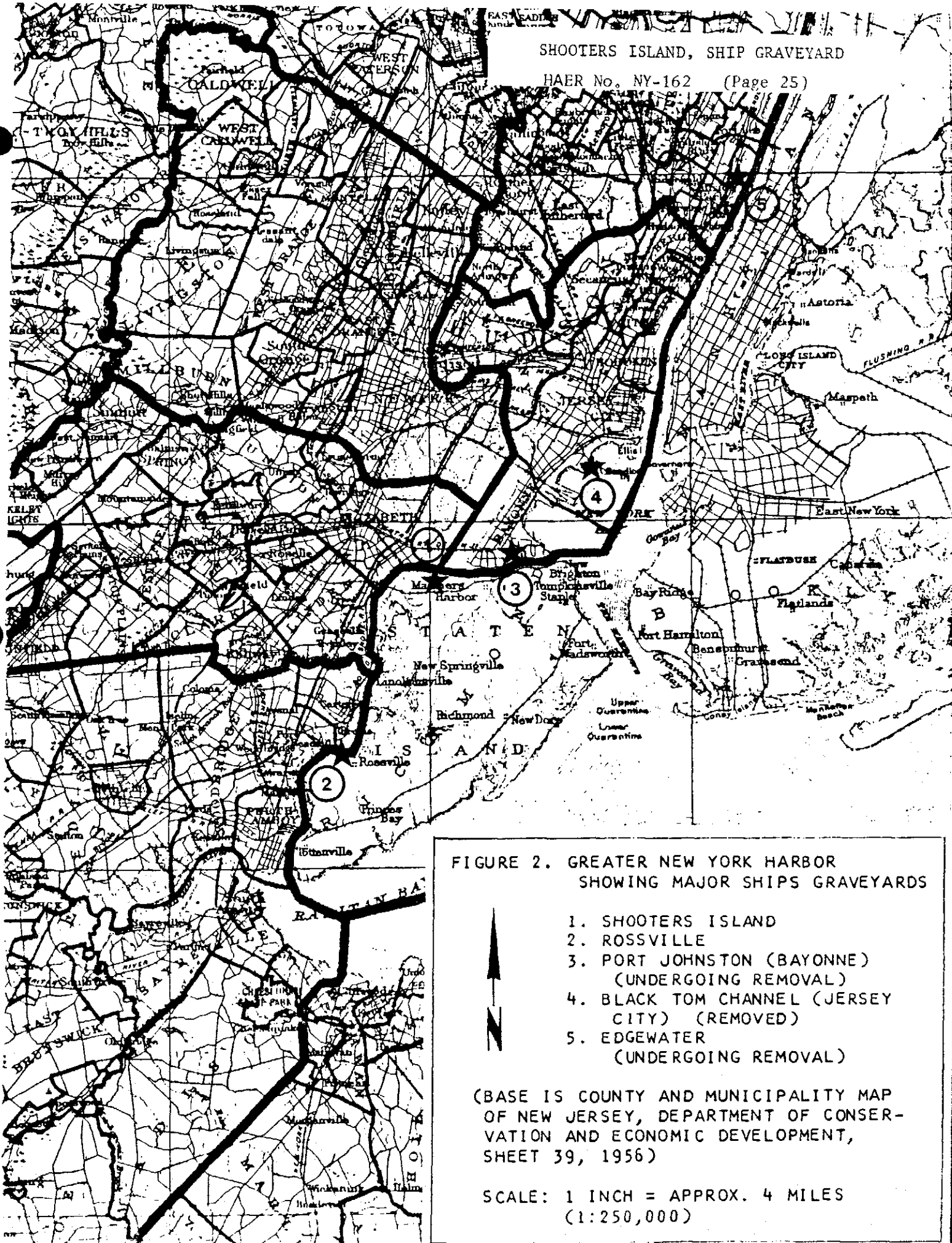


FIGURE 2. GREATER NEW YORK HARBOR SHOWING MAJOR SHIPS GRAVEYARDS

1. SHOOTERS ISLAND
2. ROSSVILLE
3. PORT JOHNSTON (BAYONNE) (UNDERGOING REMOVAL)
4. BLACK TOM CHANNEL (JERSEY CITY) (REMOVED)
5. EDGEWATER (UNDERGOING REMOVAL)

(BASE IS COUNTY AND MUNICIPALITY MAP OF NEW JERSEY, DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT, SHEET 39, 1956)

SCALE: 1 INCH = APPROX. 4 MILES (1:250,000)

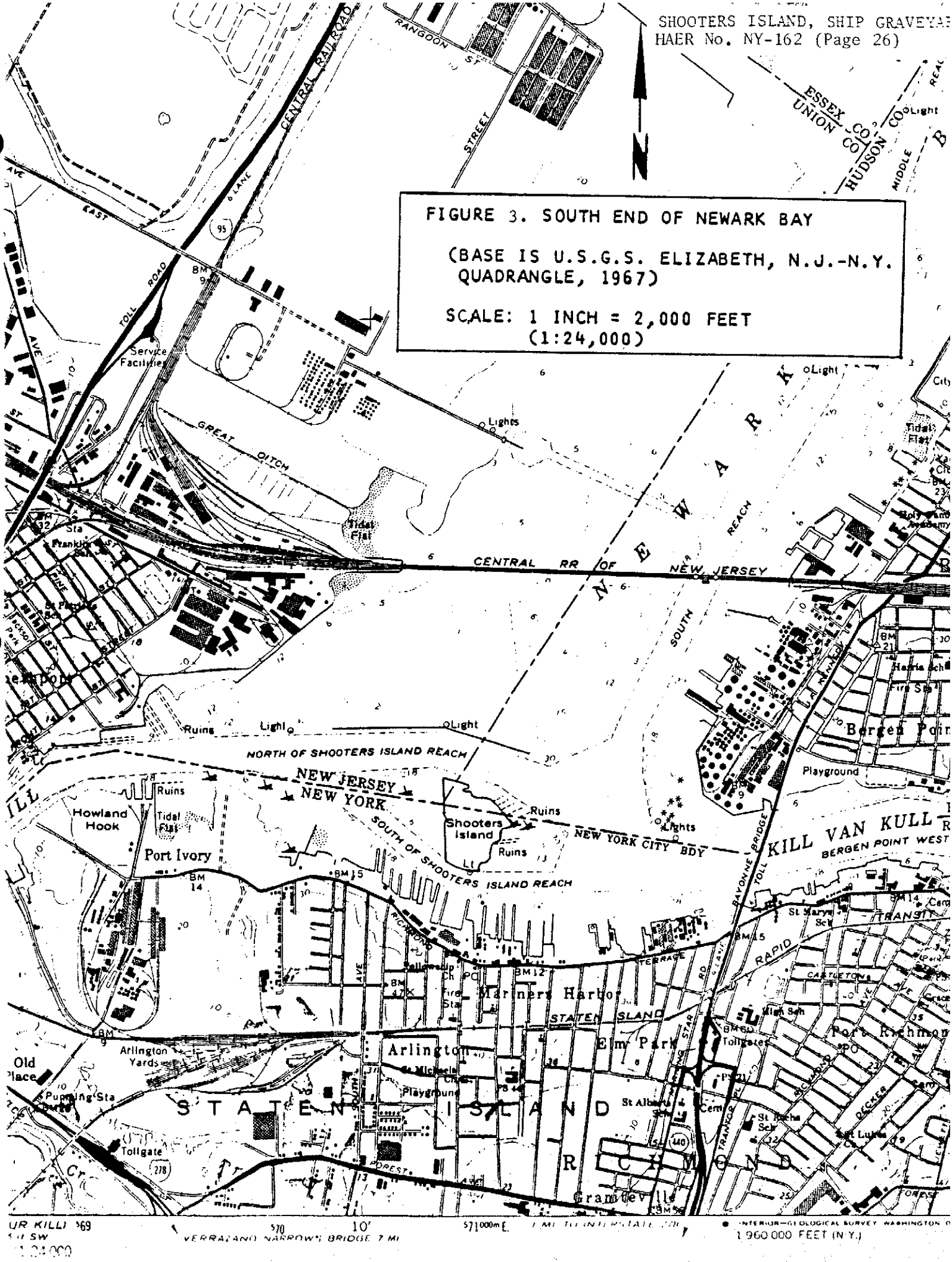


FIGURE 3. SOUTH END OF NEWARK BAY

(BASE IS U.S.G.S. ELIZABETH, N.J.-N.Y. QUADRANGLE, 1967)

SCALE: 1 INCH = 2,000 FEET (1:24,000)

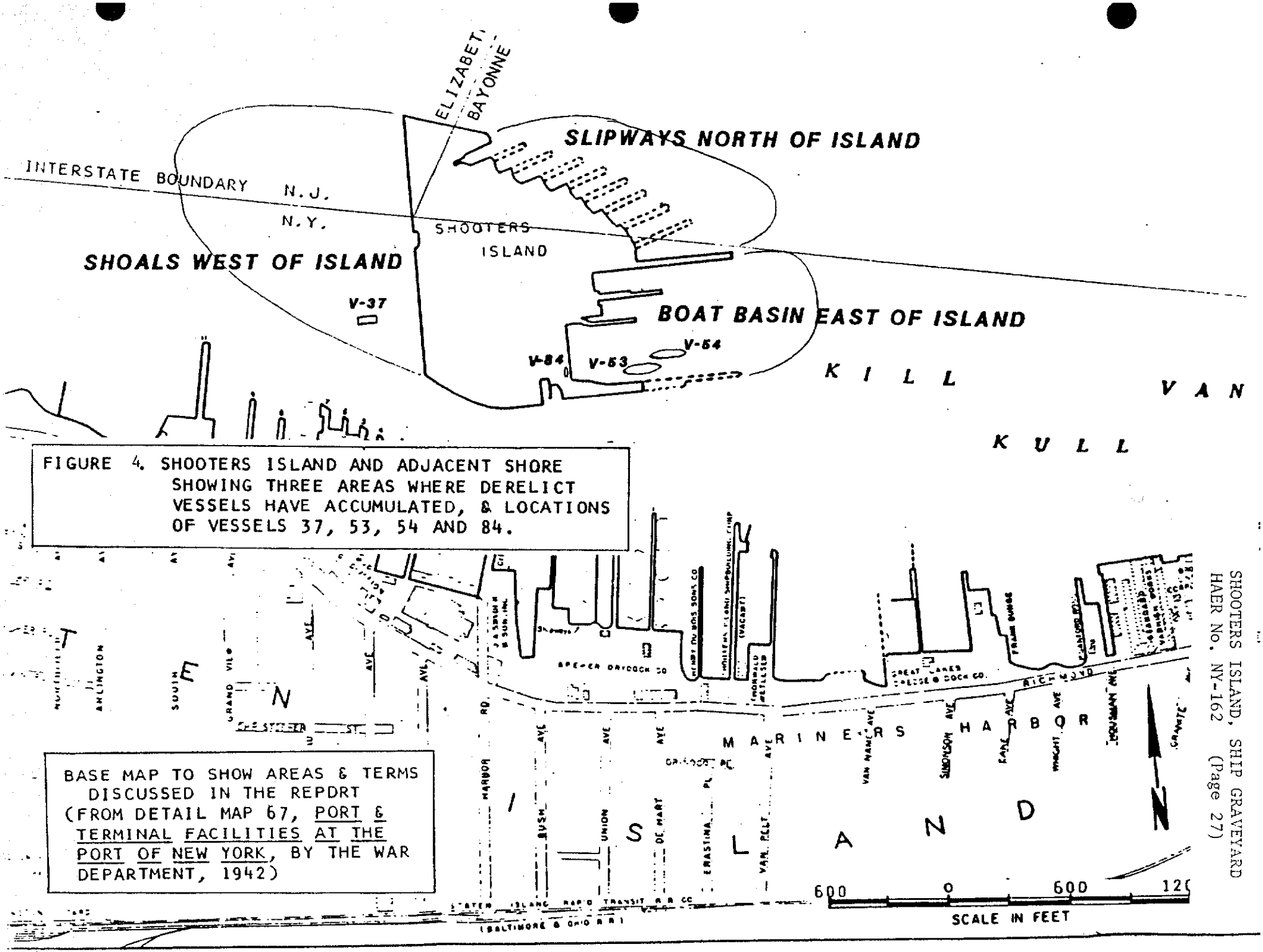
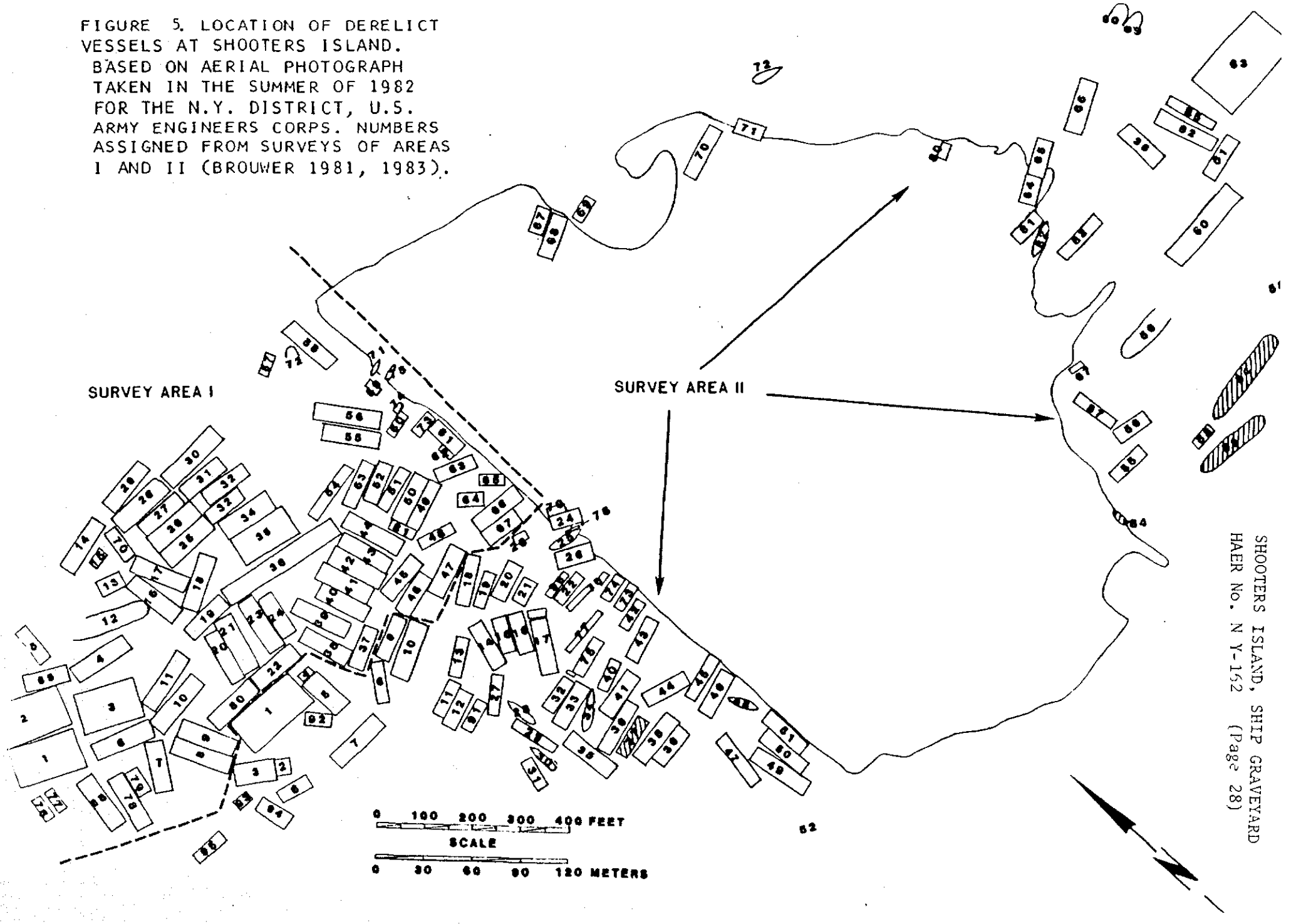
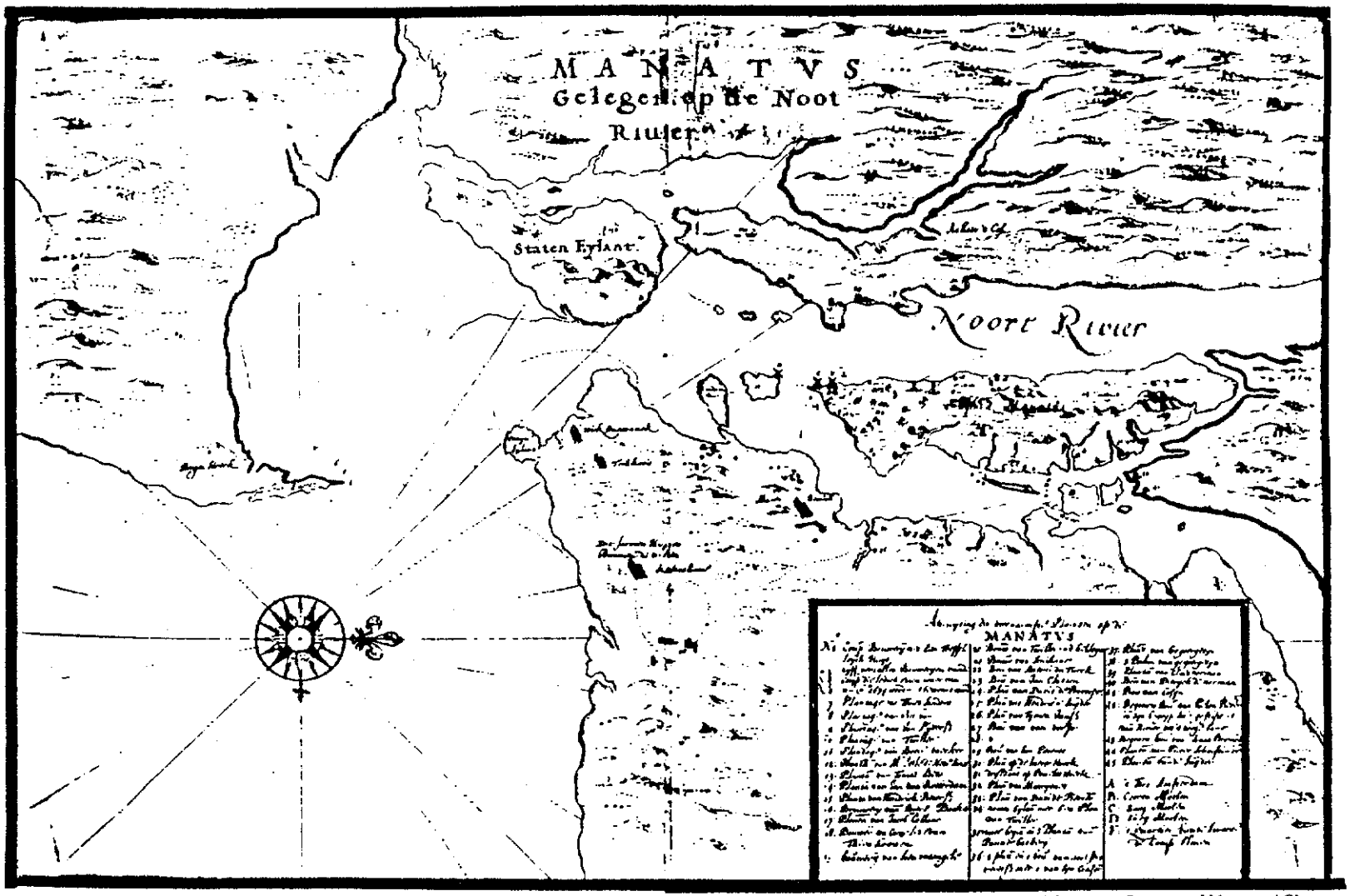


FIGURE 4. SHOOTERS ISLAND AND ADJACENT SHORE SHOWING THREE AREAS WHERE DERELICT VESSELS HAVE ACCUMULATED, & LOCATIONS OF VESSELS 37, 53, 54 AND 84.

FIGURE 5. LOCATION OF DERELICT VESSELS AT SHOOTERS ISLAND. BASED ON AERIAL PHOTOGRAPH TAKEN IN THE SUMMER OF 1982 FOR THE N.Y. DISTRICT, U.S. ARMY ENGINEERS CORPS. NUMBERS ASSIGNED FROM SURVEYS OF AREAS I AND II (BROUWER 1981, 1983).



SHOOTERS ISLAND, SHIP GRAVEYARD
HAER No. N Y-152 (Page 28)



Library of Congress, Division of Maps and Charts

This bird's-eye survey of "Manhattan Lying on the North River" is a copy, made about 1670, of the original Dutch map drawn in 1639 for the West India Company. The original has been lost, but another copy of it, made about the same time and probably by the same draftsman for Cosimo de' Medici, is now owned by the Italian government. The original may have been made by Andries Hudde, who became the first surveyor general of the province. (See F. Van Wyck, *Keskachauge* [New York, 1924], pages 134–69.)

FIGURE 6. 1639-1670 "MANATUS MAP" OF GREATER NEW YORK HARBOR AREA. SHOOTERS ISLAND IS THE SMALL DOT TO THE UPPER RIGHT (NORTHWEST) OF "STATEN EYLANT". (FROM KOUWENHOVEN 1953: 35).

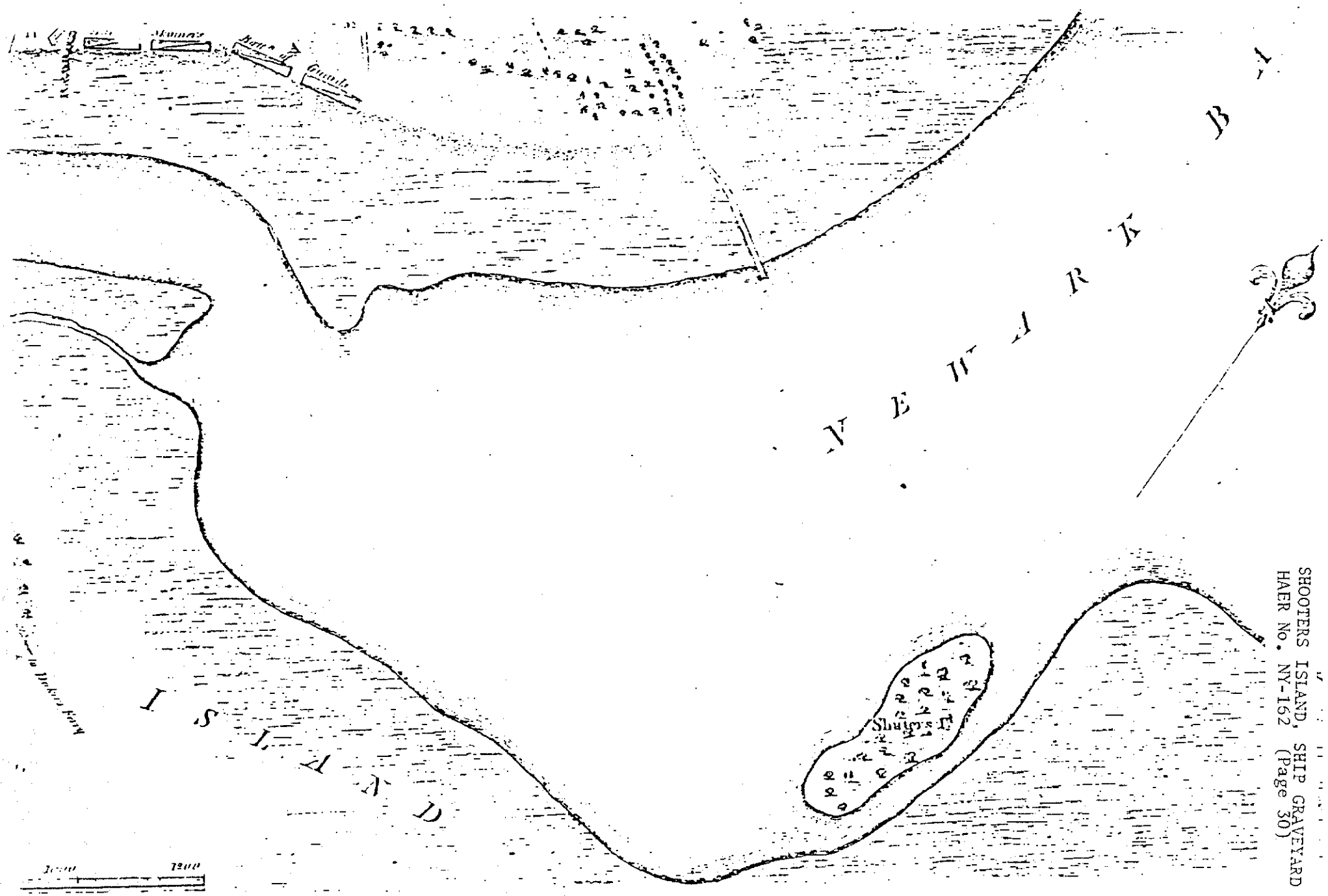


FIGURE 7 . 1780 BRITISH MAP. PART OF "SKETCH OF THE POSITION OF THE BRITISH FORCES AT ELIZABETH TOWN POINT...ON THE 8TH OF JUNE, 1780, BY JOHN HILLS, LIEUT., 23RD REGT. & ASST. ENGINEER." PUBLISHED 1784

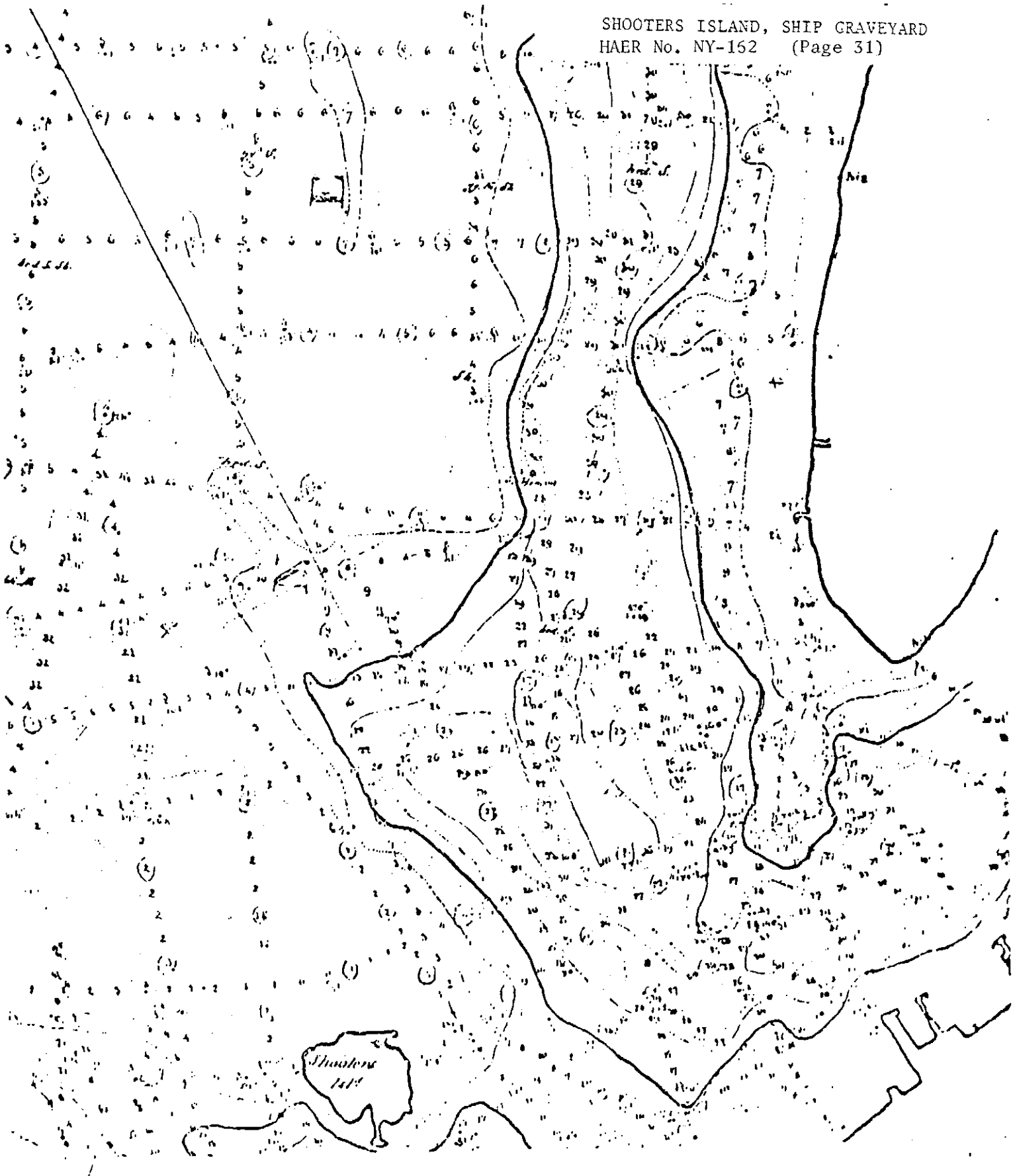


FIGURE 8. 1855-1856 BATHYMETRIC SURVEY OF NEWARK BAY. PART OF "U.S.COAST SURVEY...NEWARK BAY, NEW JERSEY...1855-1856, 1:10000, LT. R. WAINRIGHT, U.S.N., REGISTER NO. 493."

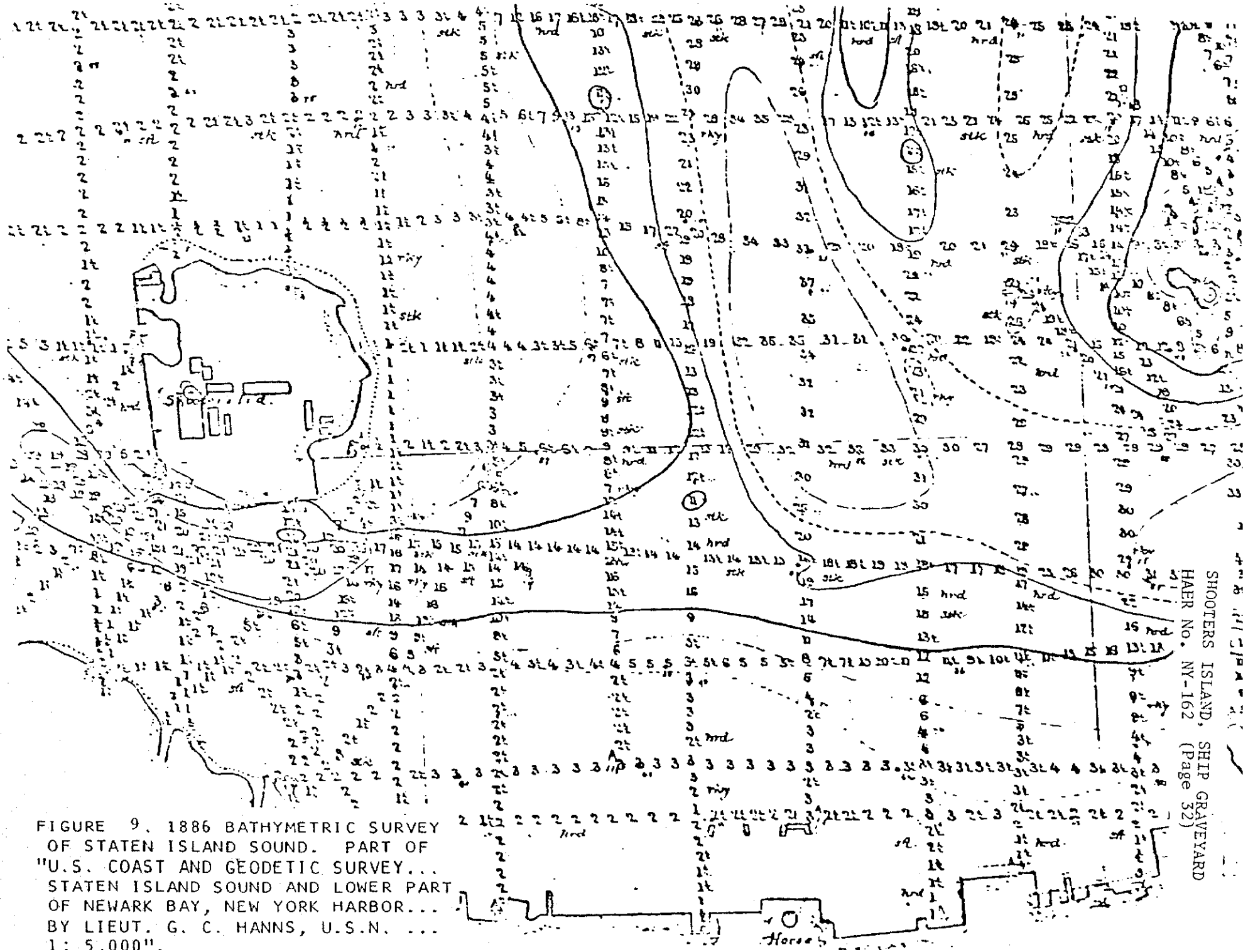


FIGURE 9. 1886 BATHYMETRIC SURVEY OF STATEN ISLAND SOUND. PART OF "U.S. COAST AND GEODETIC SURVEY... STATEN ISLAND SOUND AND LOWER PART OF NEWARK BAY, NEW YORK HARBOR... BY LIEUT. G. C. HANNS, U.S.N. ... 1:5,000".

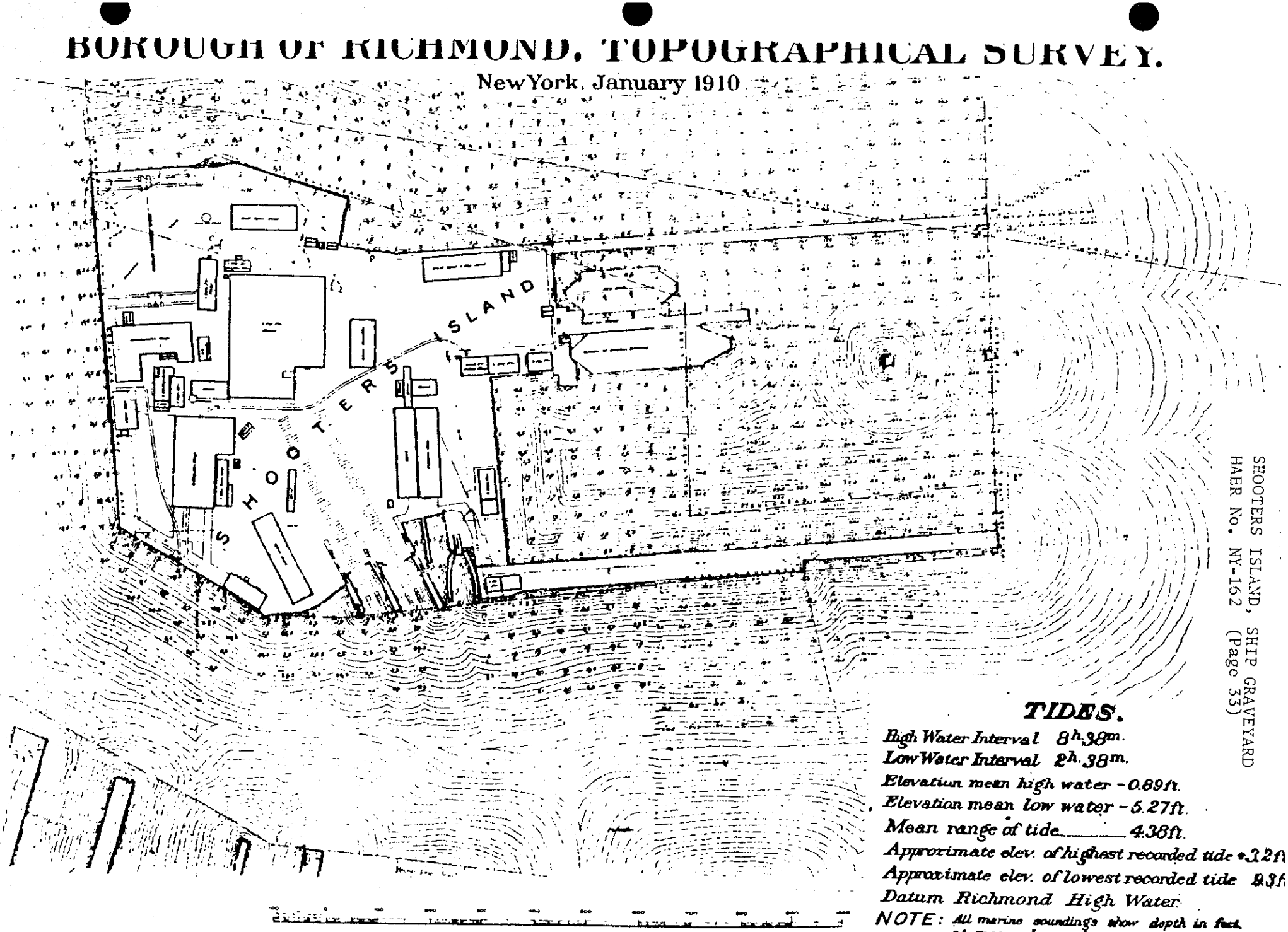
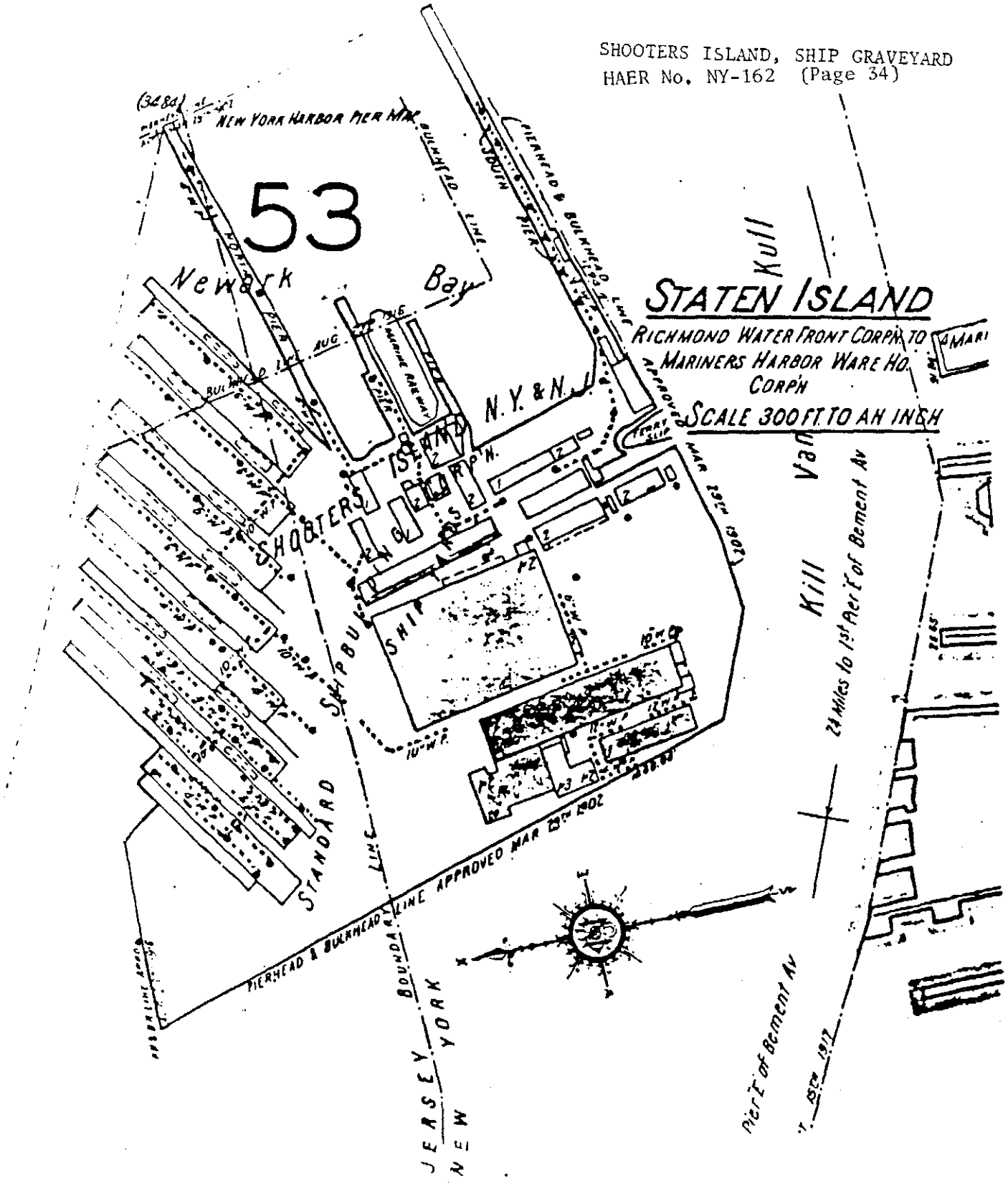


FIGURE 10. 1910 BOROUGH OF RICHMOND TOPOGRAPHIC SURVEY. COMPILED FROM SHEET 7. SCALE OF ORIGINAL 1 INCH = 150 FEET. REDUCED TO 1 IN.= 233 FT.



Detail of Sanborn's 1928 map of the Island, showing the location of the structures associated with the Standard Shipbuilding Corporation and the contemporary pier and bulkhead lines. (Scale: 1" = 300 feet.)

FIGURE 11. 1928 SANBORN INSURANCE MAP. FROM SHEET 53. MODIFIED FROM: (ROCKMAN AND ROTHSCHILD 1979: FIGURE 14).

FIGURE 12

CHART OF VESSELS BY SURVEY AREA

	VESSEL TYPES	AREA 1	AREA II	TOTALS			
a	BARGE, CANAL	0	1	1			
b	BARGES	1	6	7			
c	BARGES, COVERED	1	5	6			
d	BARGES, COVERED, PROBABLE	2	0	2	ALL BARGES	28	16%
e	BARGES, COVERED, WITH DERRICKS	0	2	2			
f	BARGES, CRANE	3	4	7			
g	BARGES, CRANE, PROBABLE	2	0	2			
h	BARGES, HOPPER	1	0	1			
i	SCOWS, DECK	52	12	64	DECK SCOWS	64	36%
j	BARGE OR SCOW REMAINS	5	38	43	UNDIF. BARGE/SCOW	43	24%
k	BRIDGES, FERRY	0	2	2			
l	CADDIES	2	0	2			
m	CAMEL	0	1	1			
n	DRYDOCKS	4	3	7	MISC. HARBOR UTILITY		
o	FLOAT, CAR (STEEL)	1	1	2	VESSELS & OBJECTS	19	11%
p	FLOATS	1	3	4			
q	PONTOON, SALVAGE	0	1	1			
r	TUGS	0	4	4			
s	TUGS, PROBABLE	1	4	5	TUGS	9	5%
t	UNIDENTIFIED VESSELS	0	2	2			
u	UNIDENTIFIED WRECKAGE	2	4	6	UNIDENTIFIED	8	4%
v	VESSEL, COASTAL FREIGHTER	0	1	1			
w	VESSEL, FERRY	1	0	1			
x	VESSEL, FOUR MASTED SCHOONER	0	1	1			
y	VESSEL, LCVP	1	0	1	SPECIFIC VESSELS	7	4%
z	VESSEL, POSSIBLE SAILING LIGHTER	0	1	1			
aa	VESSEL, POSSIBLE SMALL LIGHTER	1	0	1			
bb	VESSEL, SIDEWHEEL STEAMBOAT	0	1	1			
	TOTALS	81	97	178			

FIGURE 13

CHART OF VESSELS BY AREAS OF ACCUMULATION

	VESSEL TYPES	EAST BASIN	NORTH SLIPWAYS	WEST SHOALS	TOTALS			
a	BARGE, CANAL	0	0	1	1			
b	BARGES	0	2	5	7			
c	BARGES, COVERED	3	0	3	6			
d	BARGES, COVERED, PROBABLE	0	0	2	2	ALL BARGES	28	16%
e	BARGES, COVERED, WITH DERRICKS	0	0	2	2			
f	BARGES, CRANE	0	0	7	7			
g	BARGES, CRANE, PROBABLE	0	0	2	2			
h	BARGES, HOPPER	0	0	1	1			
i	SCOWS, DECK	0	1	63	64	DECK SCOWS	64	36%
j	BARGE OR SCOW REMAINS	8	3	32	43	UNDIF. BARGE/SCOW	43	24%
k	BRIDGES, FERRY	0	0	2	2			
l	CADDIES	0	0	2	2			
m	CAMEL	1	0	0	1			
n	DRYDOCKS	1	0	6	7	MISC. HARBOR UTILITY		
o	FLOAT, CAR (STEEL)	0	0	2	2	VESSELS & OBJECTS	19	11%
p	FLOATS	1	1	2	4			
q	PONTOON, SALVAGE	0	1	0	1			
r	TUGS	0	0	4	4			
s	TUGS, PROBABLE	1	2	2	5	TUGS	9	5%
t	UNIDENTIFIED VESSELS	0	0	2	2			
u	UNIDENTIFIED WRECKAGE	1	0	5	6	UNIDENTIFIED	8	4%
v	VESSEL, COASTAL FREIGHTER	1	0	0	1			
w	VESSEL, FERRY	0	0	1	1			
x	VESSEL, FOUR MASTED SCHOONER	1	0	0	1			
y	VESSEL, LCVP	0	0	1	1	SPECIFIC VESSELS	7	4%
z	VESSEL, POSSIBLE SAILING LIGHTER	1	0	0	1			
aa	VESSEL, POSSIBLE SMALL LIGHTER	0	1	0	1			
bb	VESSEL, SIDEWHEEL STEAMBOAT	1	0	0	1			
	TOTALS	20	11	147	178			
	PERCENTAGES OF TOTAL	11%	6%	83%	100%			

FIGURE 14

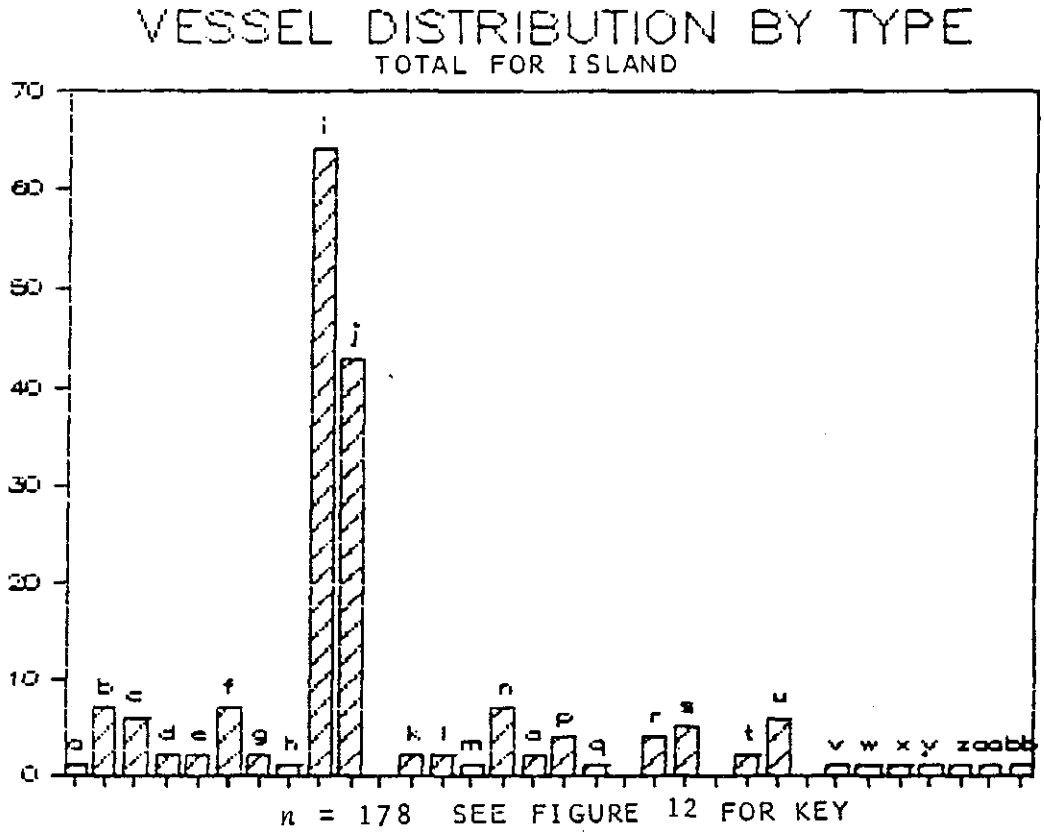


FIGURE 15

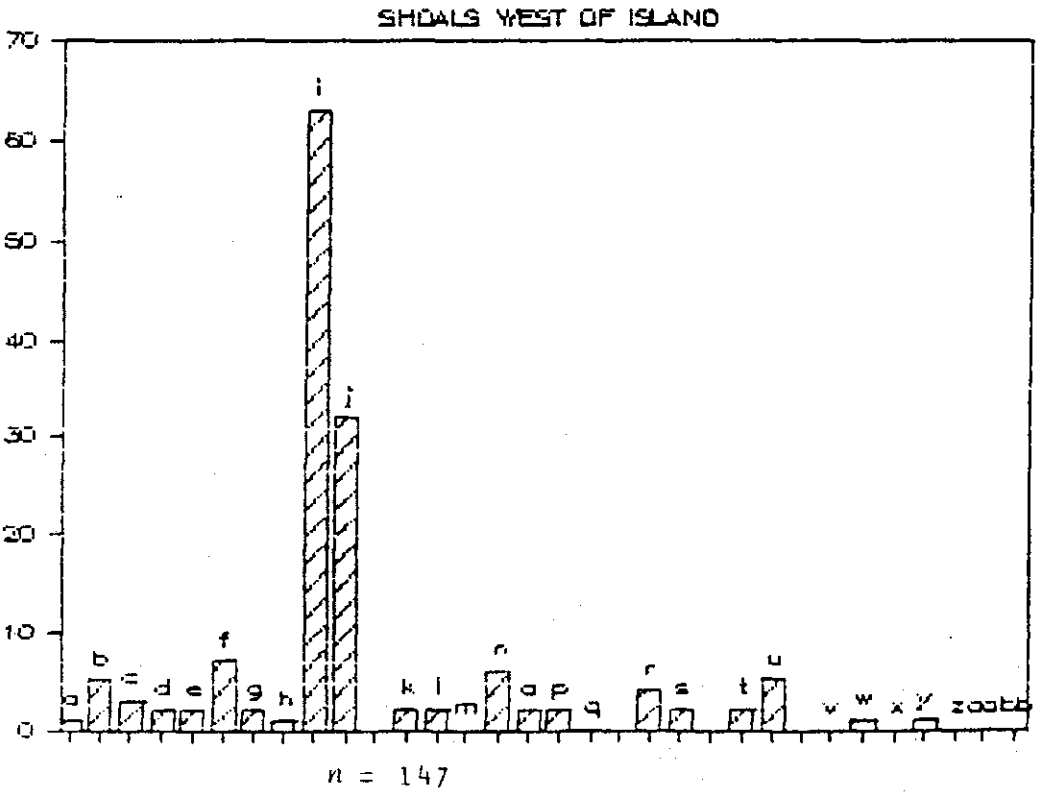
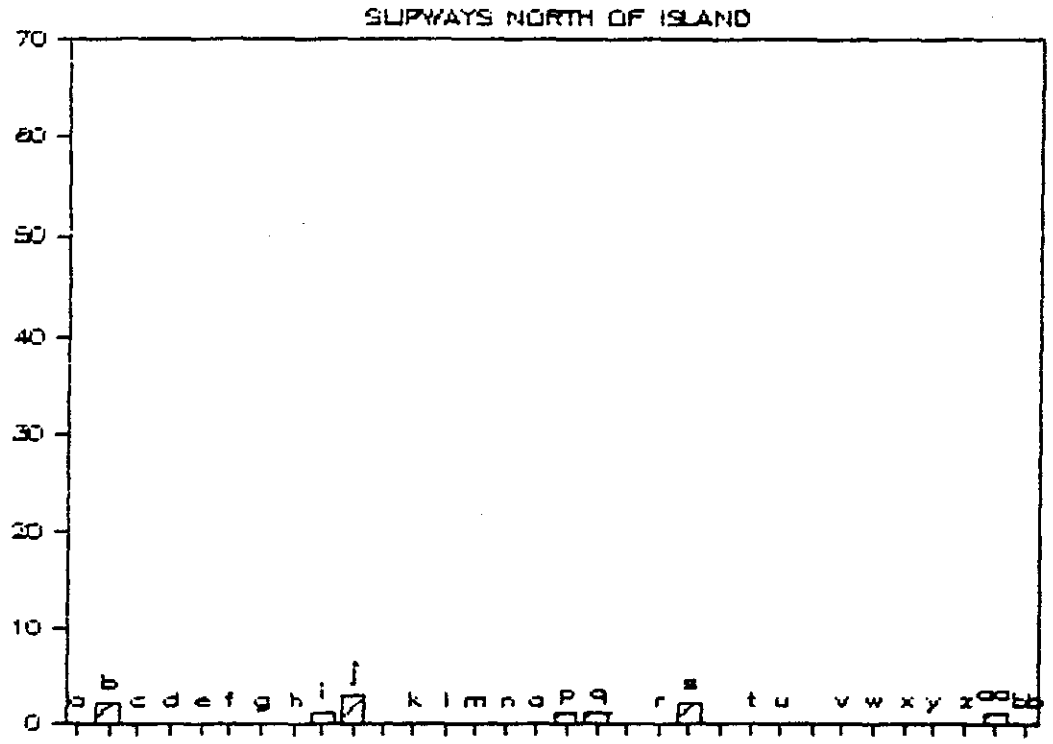
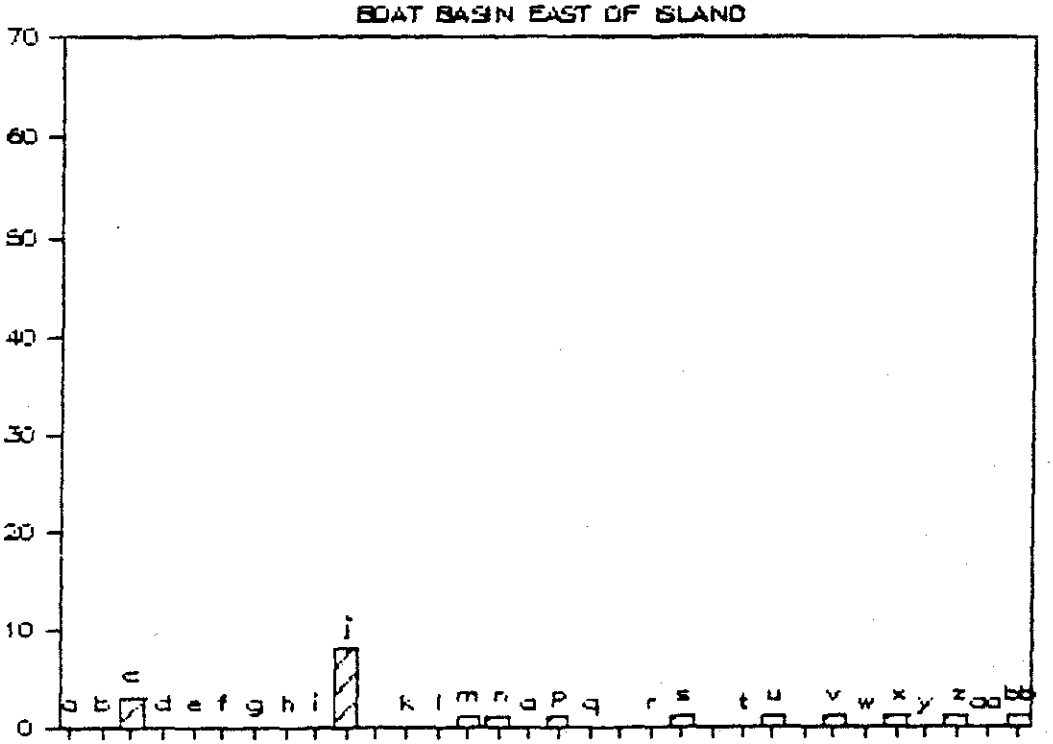


FIGURE 16

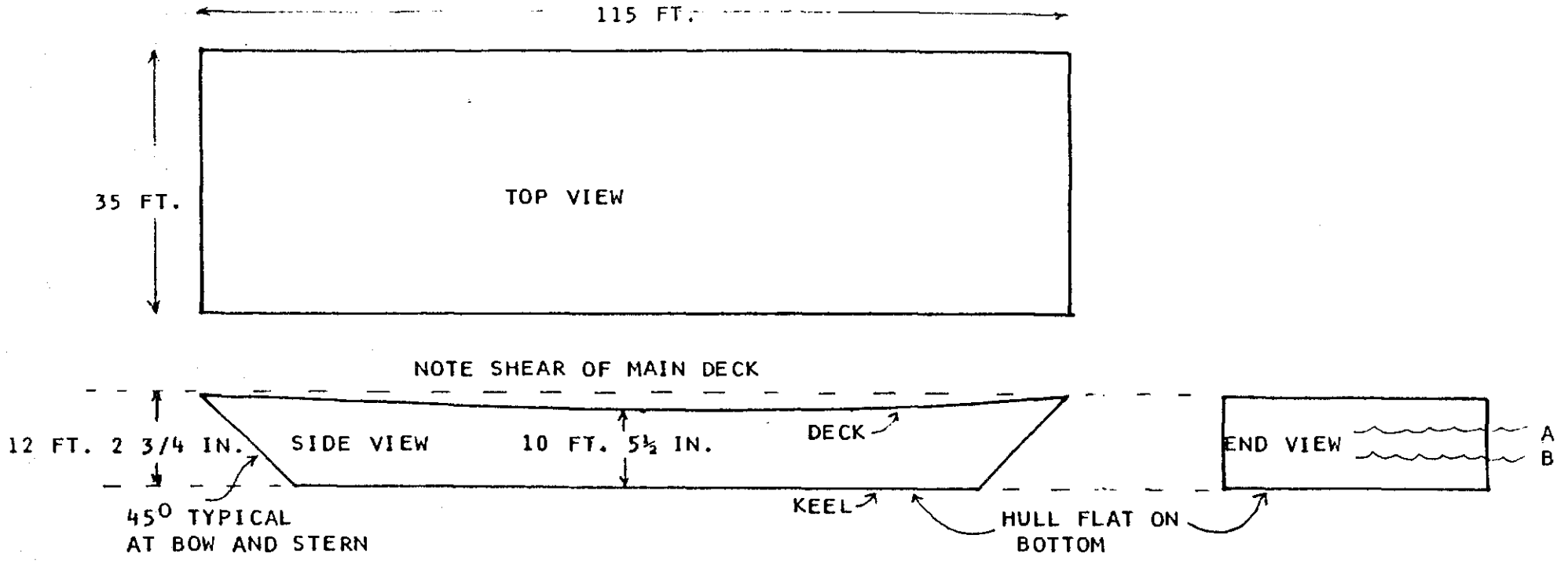


n = 11

FIGURE 17



n = 20



A= APPROXIMATE WATERLINE, LADEN
B= APPROXIMATE WATERLINE, EMPTY

THESE ARE ESTIMATED TO FALL WITHIN THE MIDDLE THIRD OF THE APPROXIMATELY 10 FOOT DEPTH AT MIDSHIP.

SCALE
1 IN.= 20 FT.

0 10 20 FT.

FIGURE 18. SKETCH OF HULL SHAPE FOR SCOWS

THESE DIMENSIONS FOR A DECK SCOW WERE SUPPLIED BY N. BROUWER AND DRAWN BY E. LARRABEE.

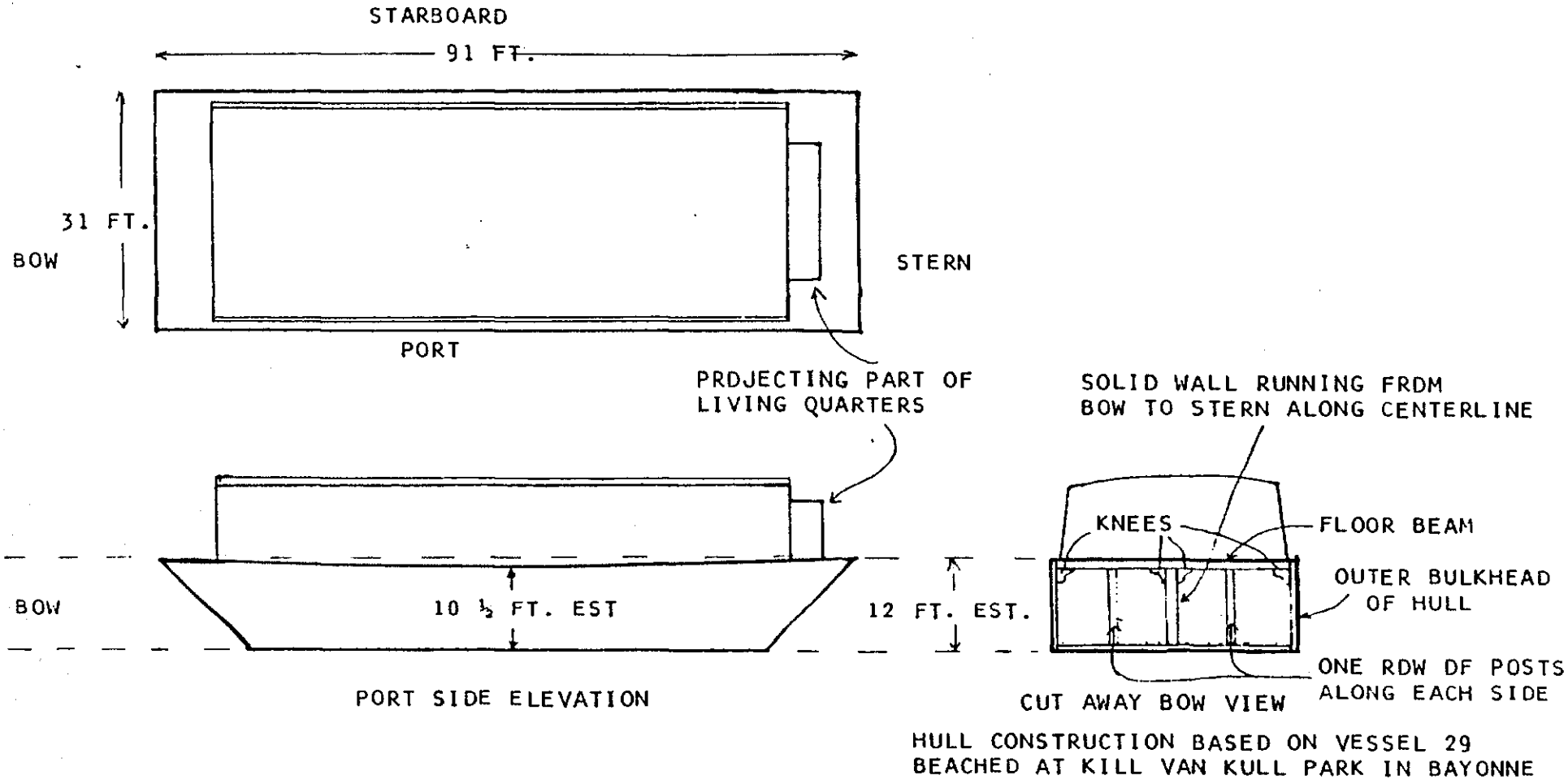


FIGURE 19. SKETCH OF HULL SHAPE FOR BARGES

WITH TYPICAL HULL BASED ON DECK SCOW, SCALED DOWN TO 31 BY 91 FOOT DIMENSIONS OF VESSEL 37 AT SHODTERS ISLAND. SUPERSTRUCTURE DUTLINED FROM DETAILED RECORDATION DRAWING BY R. NASH AND L.D. NASH. SKETCH BY E. LARRABEE

SCALE
1 IN.= 20 FT.
0 10 20 FT

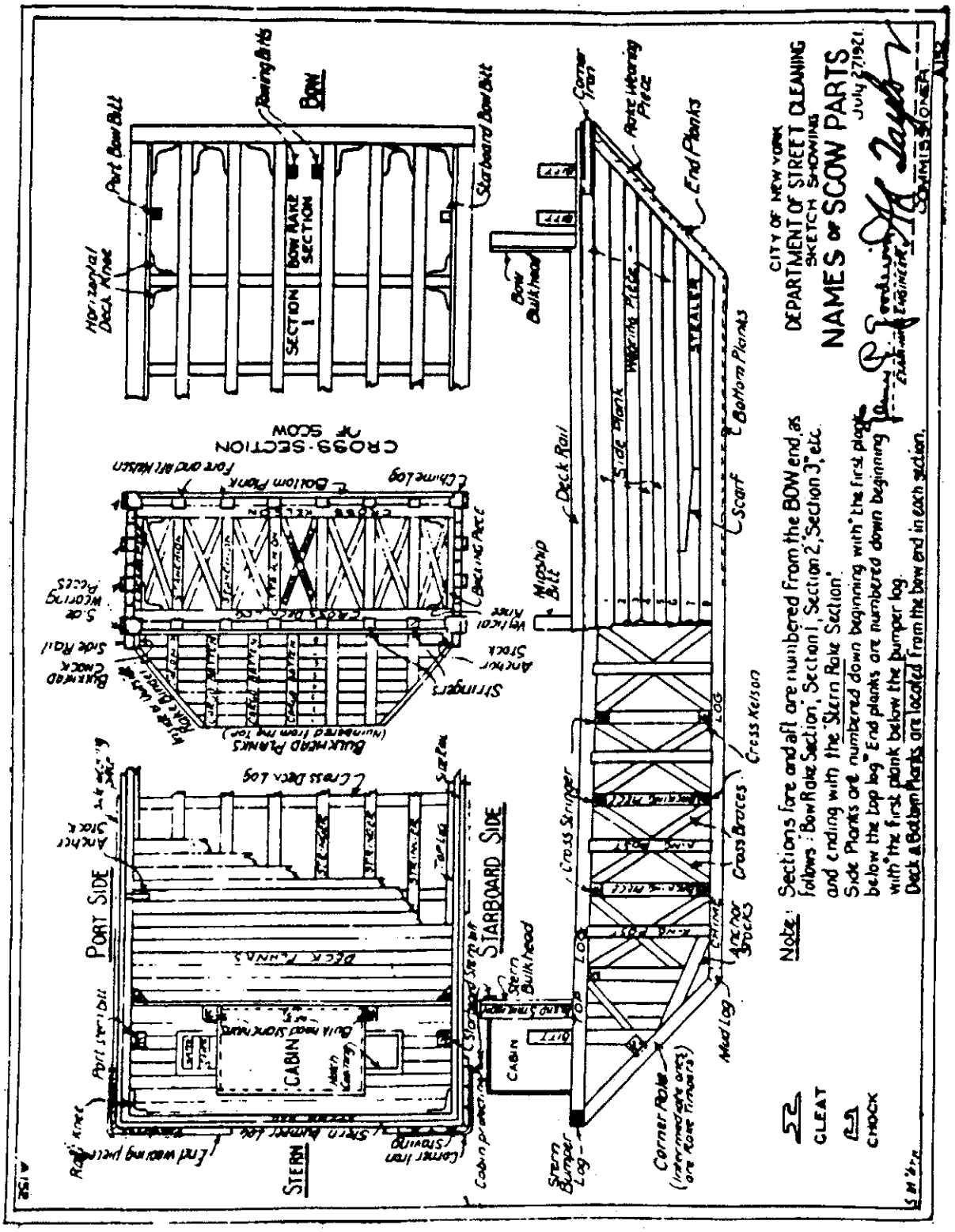


FIGURE 20. 1928 DRAWING OF A NEW YORK GARBAGE SCOW.
(FROM A COPY NEGATIVE AT THE SOUTH STREET SEAPORT LIBRARY)

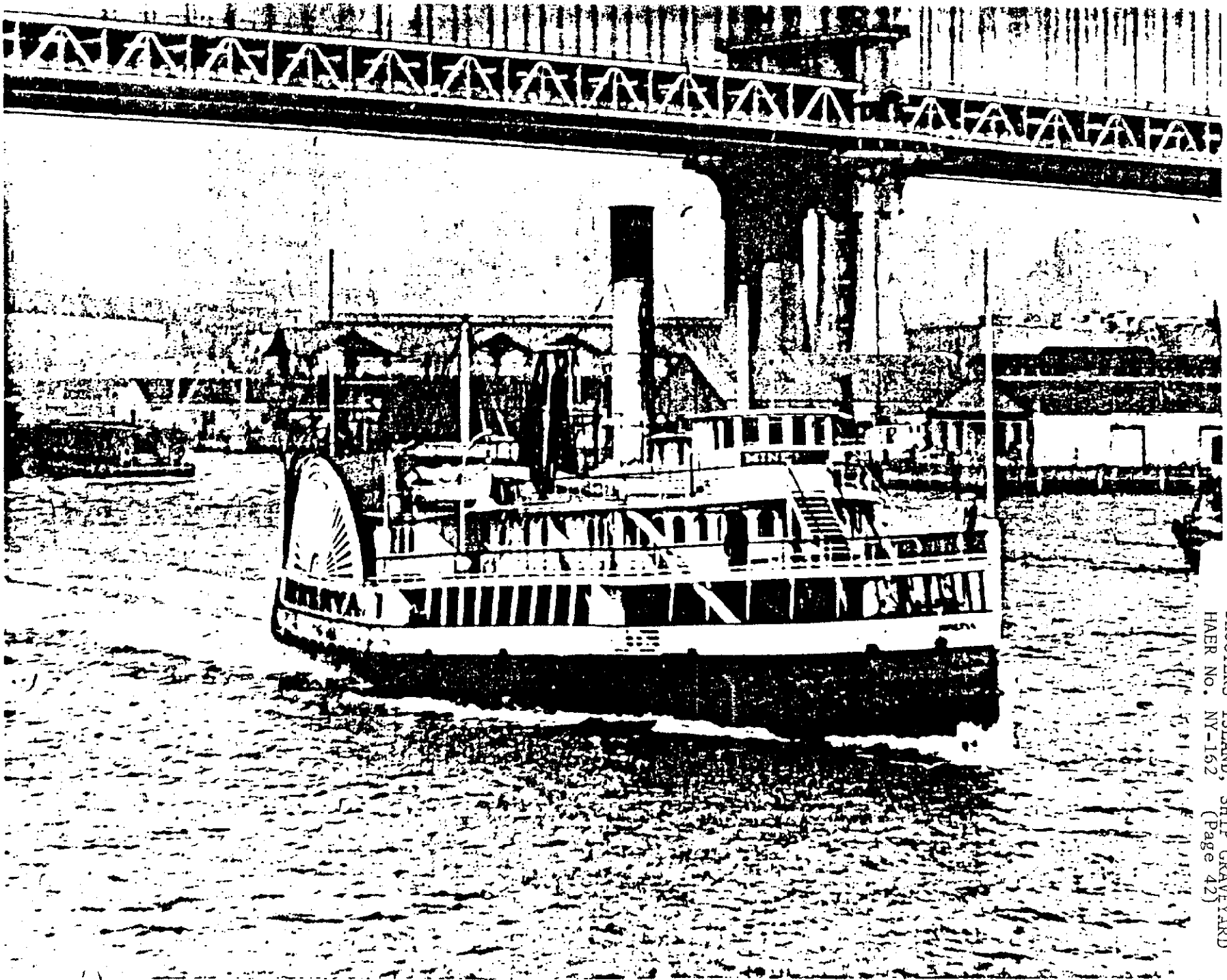


FIGURE 21. HISTORIC PHOTOGRAPH OF THE "MINERVA" UNDER THE MANHATTAN BRIDGE. COLLECTION OF HARRY JONES, 1001 TYLER COURT, WALDORF, MARYLAND 20601.

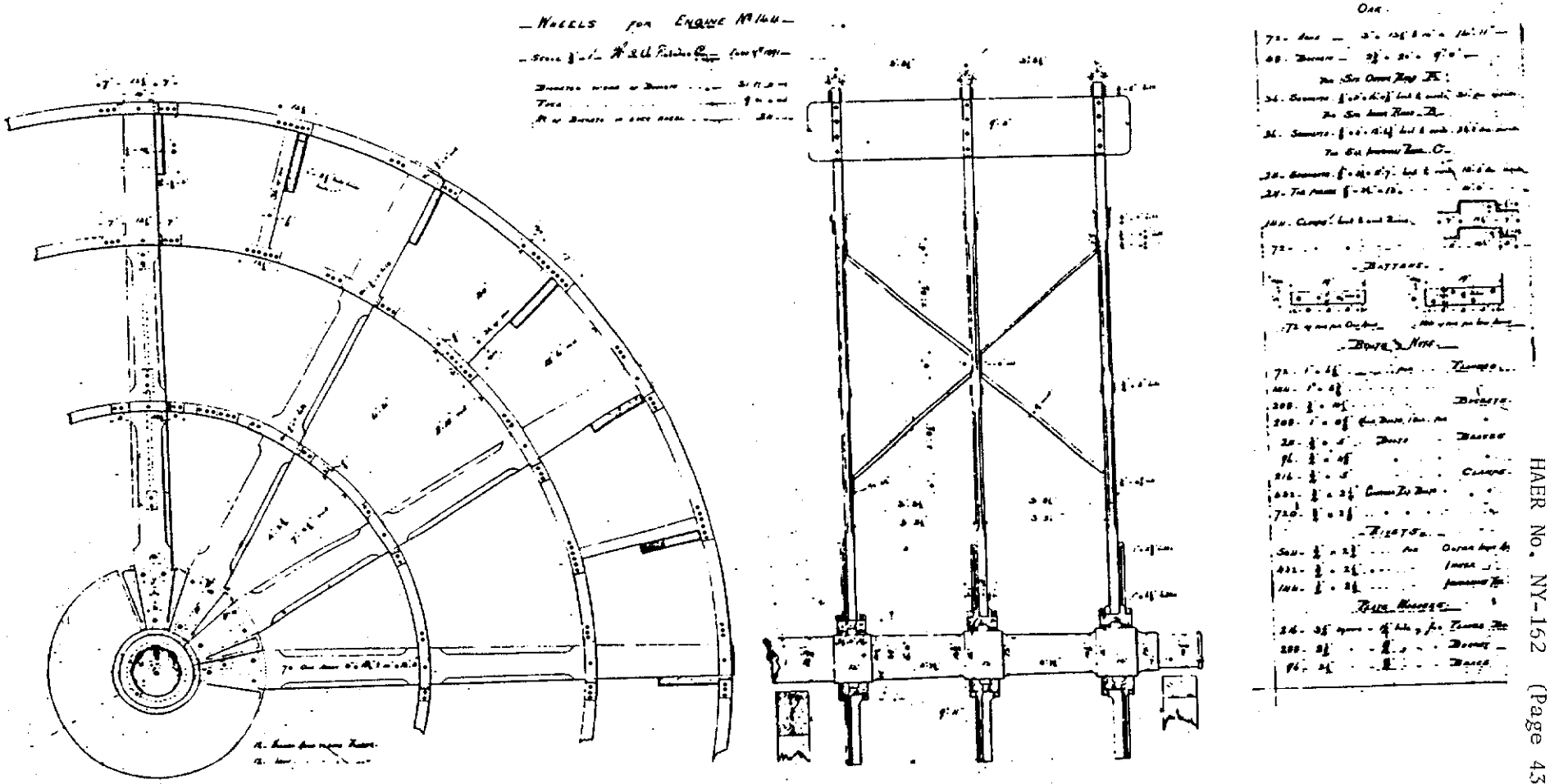
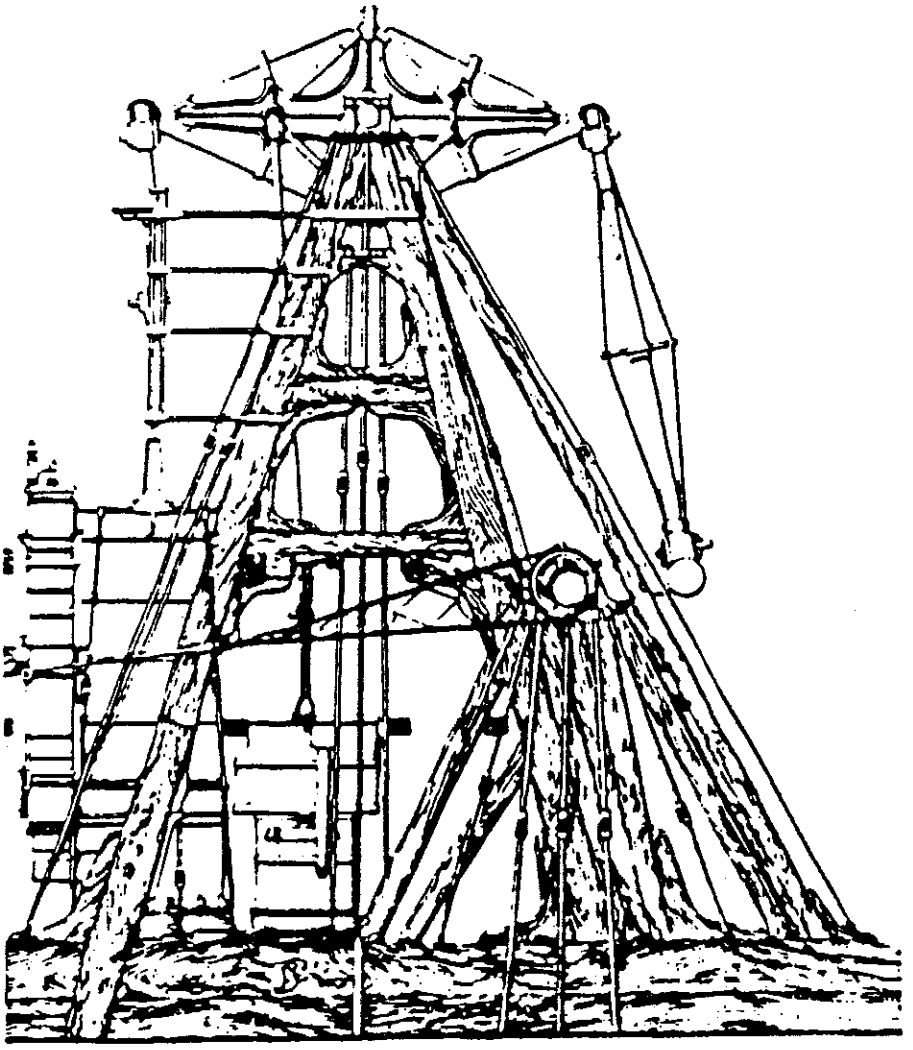


FIGURE 22. 1891 PADDLEWHEEL DRAWING. TITLED "WHEELS FOR ENGINE NO. 144 SCALE 3/4" = 1' H & A FLETCHER CO. FEB'Y 9TH 1891." THIS ENGINE WAS PUT ON "THE GENERAL SLOCUM". THE ORIGINAL INK ON LINEN DRAWING IS AT THE SOUTH STREET SEAPORT LIBRARY.



DRAWING OF A WALKING BEAM ENGINE WITH A FRAME, FOR THE SHIP GOLDEN AGE, LAUNCHED IN 1853, FROM AMERICAN STEAMSHIPS (RIDGELY-NEVITT 1981: 271)

FIGURE 23. 1853 WALKING BEAM ENGINE DRAWING.

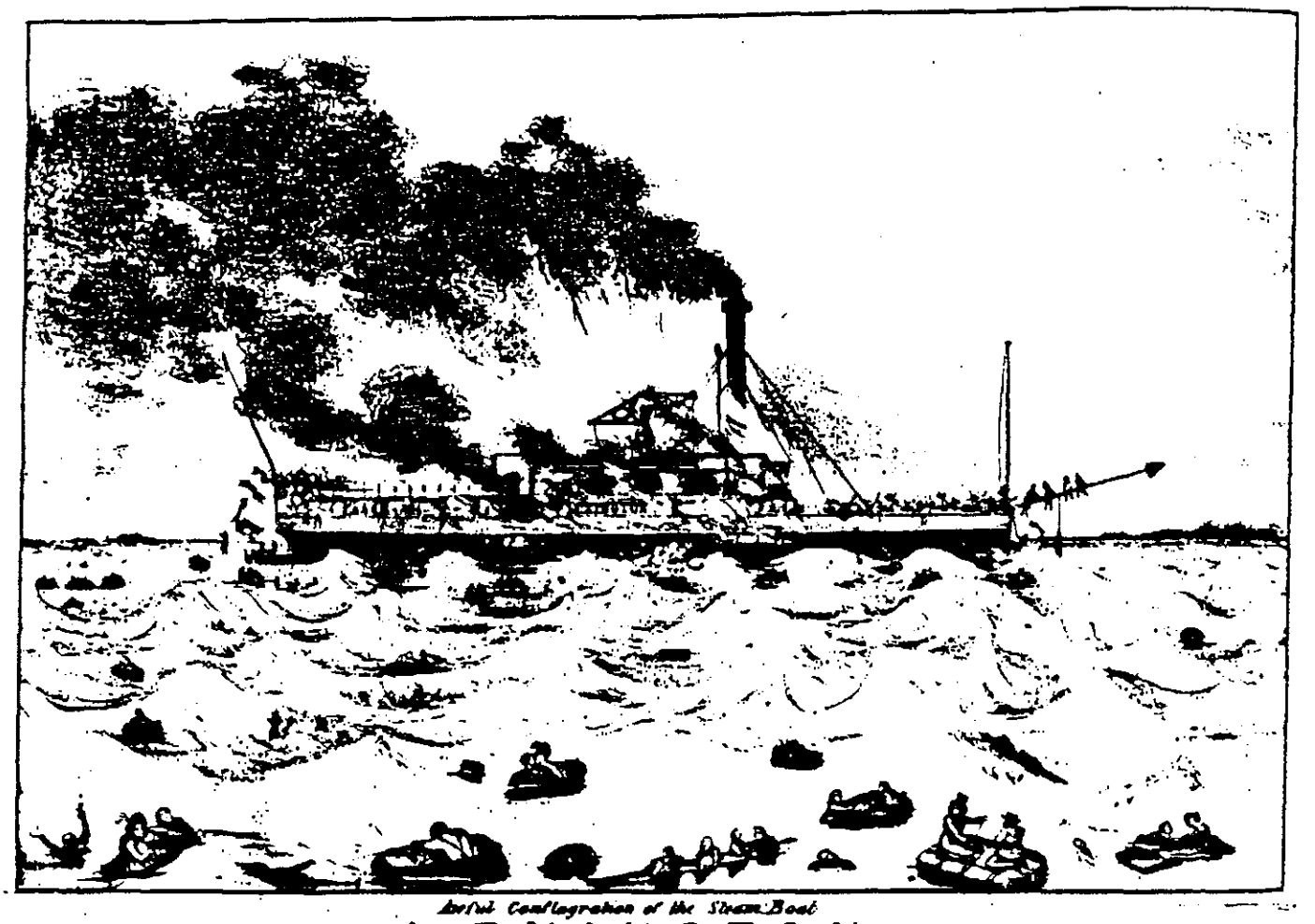


FIGURE 24. 1840 MARITIME DISASTER PRINT.
(FROM KOUWENHOVEN 1953: 152. THE ORIGINAL IS IN THE PRINT ROOM AT THE NEW YORK PUBLIC LIBRARY)

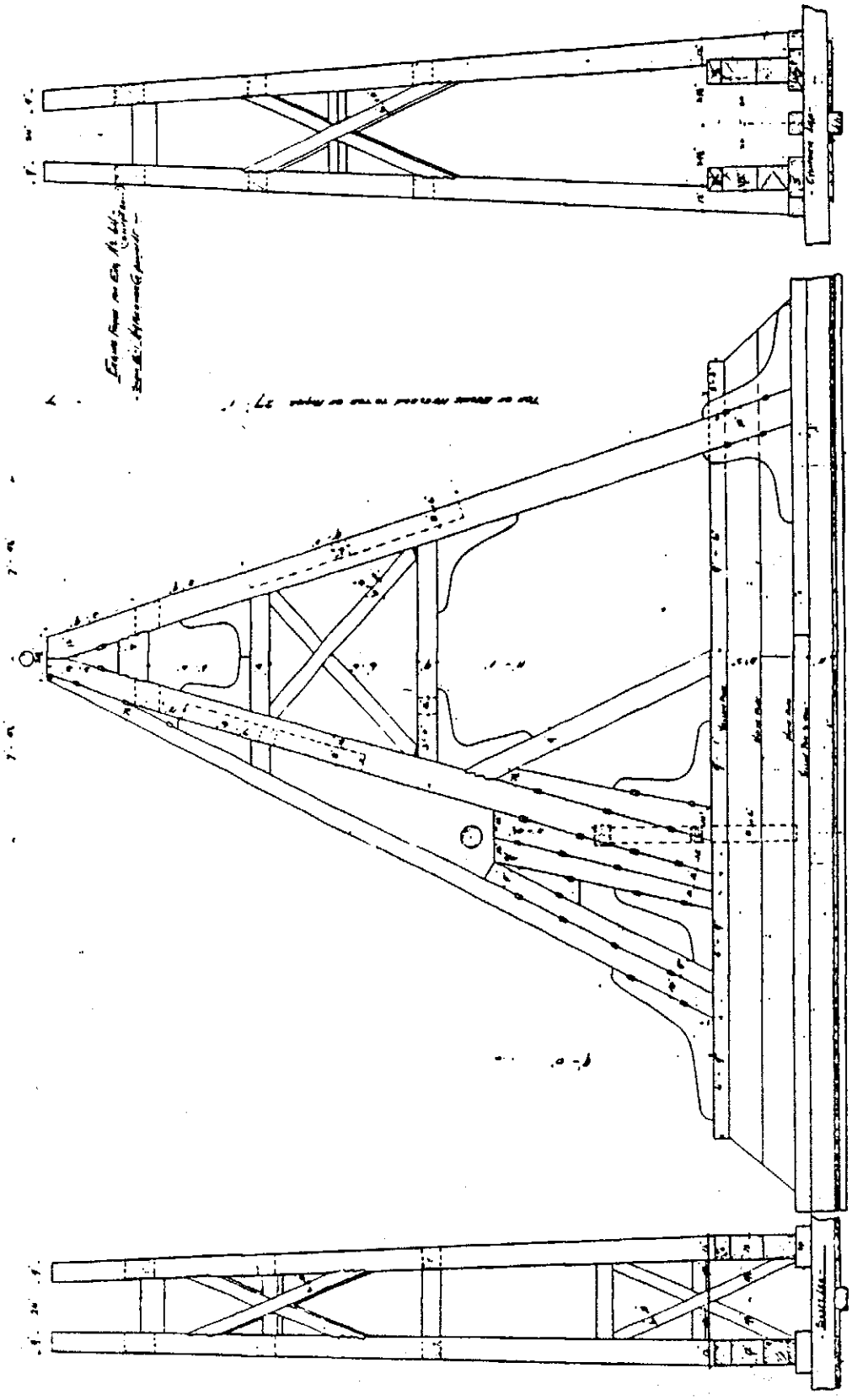


FIGURE 25. 1872 A-FRAME DRAWING. TITLED "ENGINE FRAME FOR ENG. NO. 64 - ("SYLVAN DELL") SCALE 1½" = 1' H + A FLETCHER CO HOBOKEN N.J." THIS SHIP WAS BUILT IN 1872 BY LAWRENCE & FOULKS. THE ORIGINAL INK ON LINEN DRAWING IS AT THE SOUTH STREET SEAPORT LIBRARY.

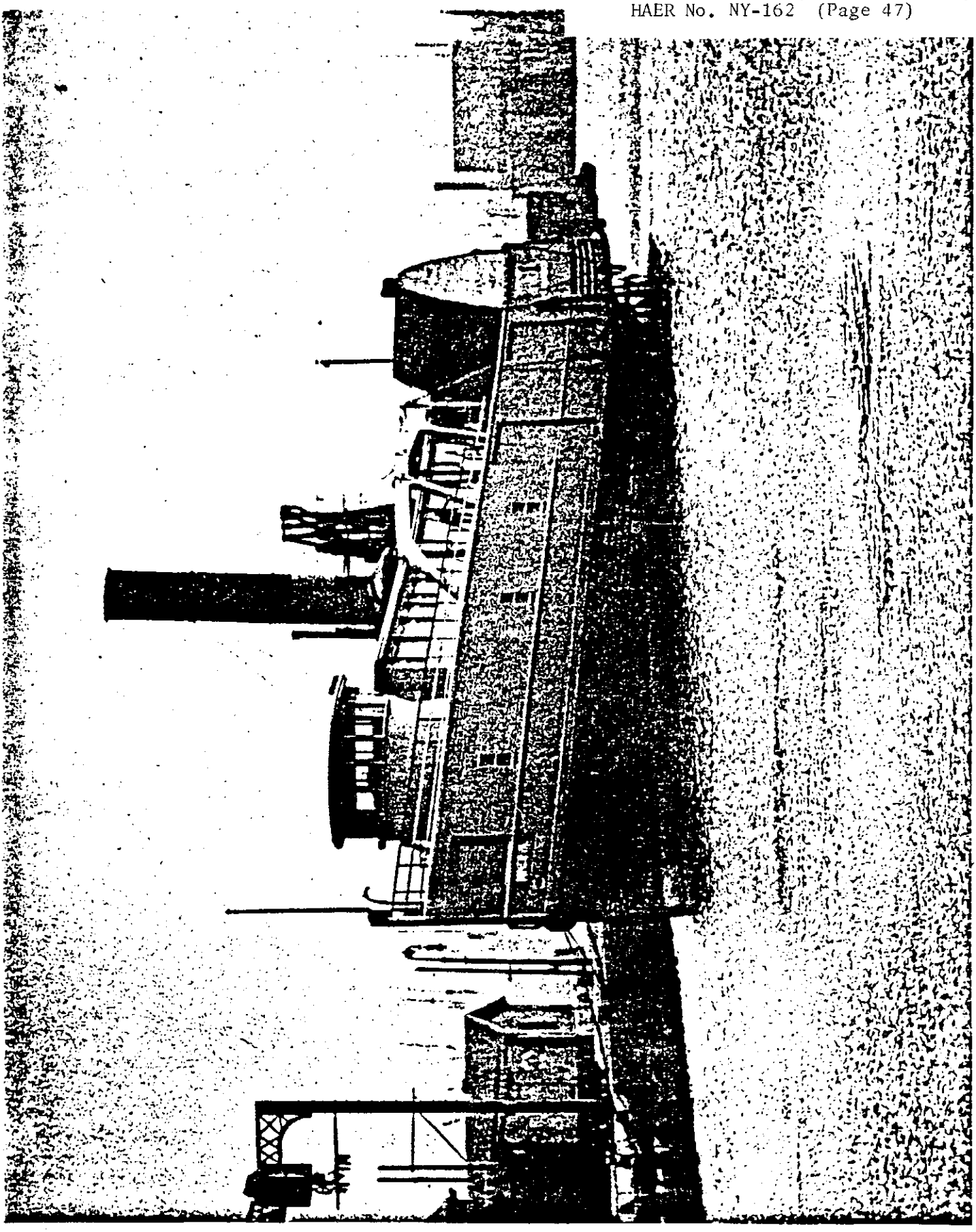
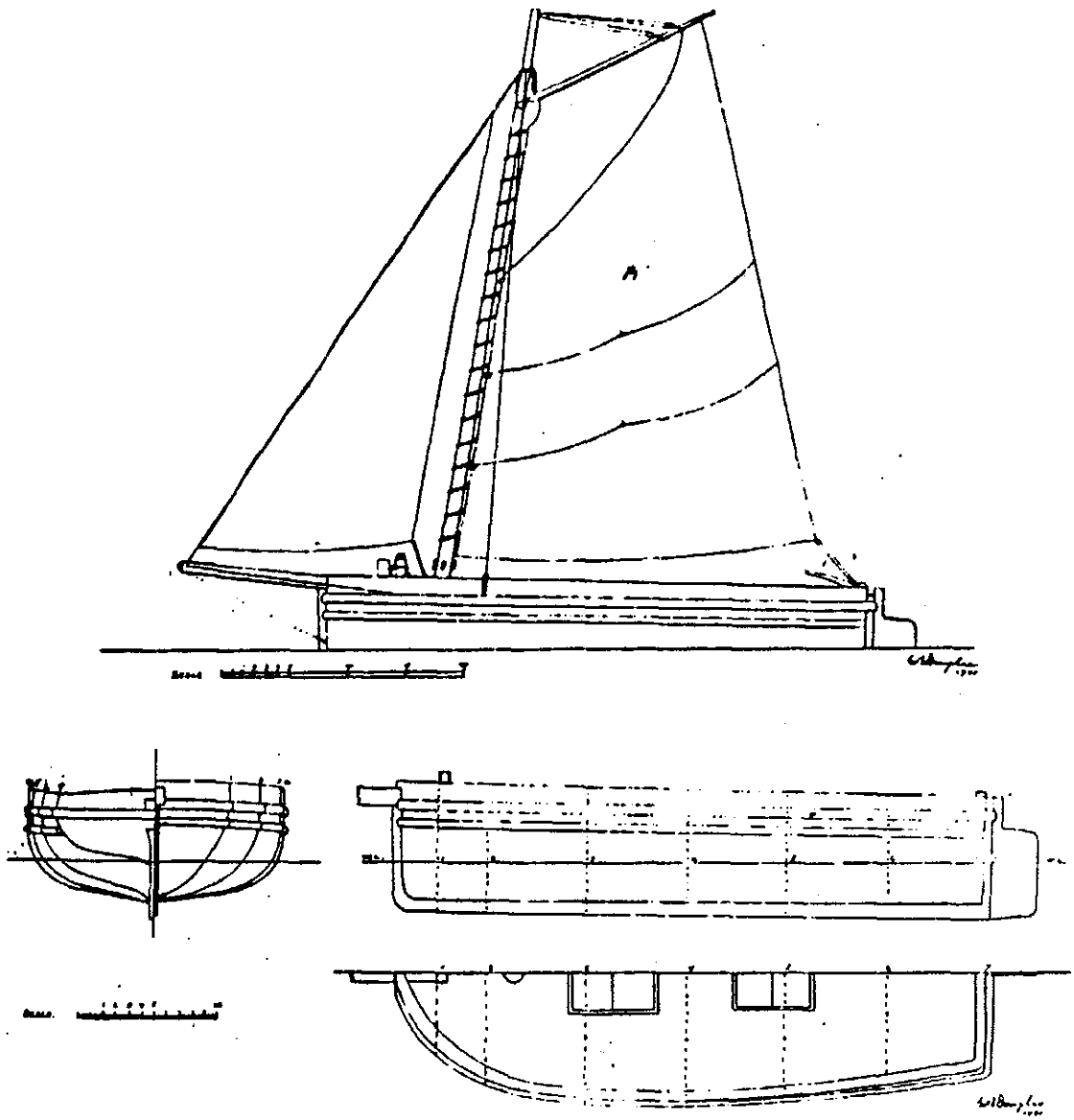


FIGURE 26. HISTORIC PHOTOGRAPH OF THE "MINERVA" AFTER CONVERSION TO A FREIGHTER
COURTESY OF HARRY JONES, 1001 TYLER COURT, WALDORF, MARYLAND 20601



The Sailing Lighter of New York Harbor

A SAILING LIGHTER

ANYONE who has crossed the New York ferries, or who is at all familiar with the waters around New York, cannot have failed to notice the old-fashioned, and now almost out-of-date, sailing lighter of the sloop rig, which one can see any day trying to make its slow way along in the busy river either under sail or being towed along by some saucy tug.

It occurred to me one day that the readers of THE RUDDER might like to have the plans of one of these lighters and I hunted around among the builders of such vessels, but not one of them had a plan or a drawing that they could show me, so that after a long search I almost made up my mind that this style of boat simply grew in some man's brain, and I couldn't find the man. A friend of mine in the lighterage business, however, came to my aid and borrowed for me a model of one of them that was about 12 inches long and was said to be about 90 years old. I took the lines off of that model, found one of the boats and measured that for some of the details and paid a visit to one of the old South St. sail lofts, where the owner kindly told me all about the sails. The next thing was to get a photograph of one of them under sail, and that I found, like the plans, to be as scarce as hens' teeth. I finally found one, however, and take pleasure in giving you in the accompanying cuts the result of my labors.

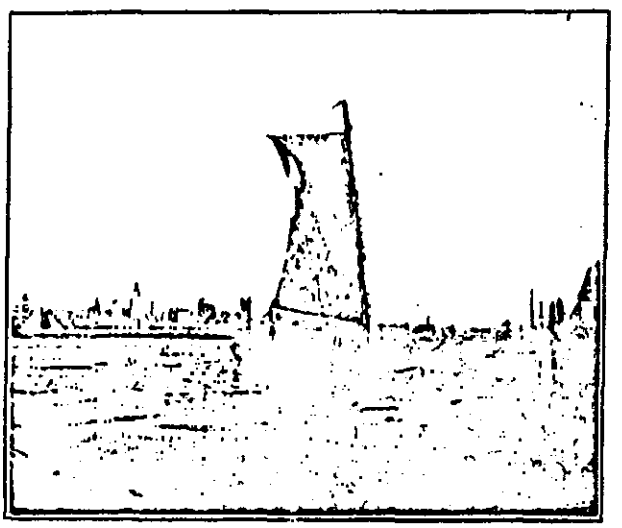
After the Civil War there came into use for the purpose of transferring general cargo about the harbor a vessel that was called a *periagua*. This was a flat-bottomed keelless boat, rigged with mast and sail, the majority of them constructed without decks. One of these boats

FIGURE 27. 1901 DRAWING OF A NEW YORK HABOR LIGHTER.

that could carry a cargo of one hundred bales of cotton was considered a large carrier. The mode of loading was by a purchase hand over hand, and any piece over a ton was lowered by taking a turn around the mast, .

In 1864 the hand winch, invented by the late Edward Sterns, was one of the first and best improvements for the handling of freight to and from lighters, and was universally adopted, it being used on a very large number of lighters and barges working in the harbor to-day.

After the periagua came the large sail lighter, larger and deeper, something on the style of a regular ship, drawing more water, carrying a great deal more cargo, and having a hold and a deck. One of these sail lighters would go down to South Amboy, take on a cargo at the old Camden and Amboy dock, the then terminus of the Pennsylvania Railroad, and when she had finished loading would set sail for her point of delivery in the harbor of New York; if the wind failed she would lay to and anchor. Tug boats in those days were looked upon as very expensive luxuries, and sail lighters would seldom engage them for the purpose of being towed unless



Sailing Lighter

in distress; if a consignee expected his cargo in two days and had to wait six days it was simply a case of grin and bear it. There are still some of these sail lighters afloat and doing business to-day in the harbor, but the number is very small, and in a few years more they will be like their predecessor, the periagua, only a memory.

The winch was placed just forward of the mast, and the mast was given a decided rake, so that the head of it would come over the center of the hatch. The peak of the gaff is dropped and the sail hailed into the mast. The crew consists of two men and a dog.

The following are the dimensions:

Length	96	feet
Beam	41	"
Draught when not loaded	9	"
Mast, deck to head	103	"
Gaff	37	"
Bowsprit, outboard	25	"

GEORGE B. DOUGLAS.